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Editorial

This issue of *Accounting and Business Research* marks the completion of the hand over of editorial responsibility from Bob Parker and Chris Nobes to ourselves. It is therefore an appropriate occasion to express thanks, on behalf of the accounting research community, to Bob and Chris for their sterling work with the journal. Each member of the new editorial team has had personal experience, as past contributors to *Accounting and Business Research*, of the good judgment our predecessors exhibited in managing the review process and the care with which they saw manuscripts through to final publication. We are beginning to realise what it takes to live up to the high standards they have set us.

Bob Parker took over from the founding editor, Walter Taplin, in 1975 and Chris Nobes joined him as associate editor seven years later. Enormous changes have taken place in accounting research, both in terms of growth in volume of published output, and importation of methods from the economic, behavioural, mathematical and statistical sciences, during their terms of office. The number of academic accounting journals has grown by leaps and bounds, including ones specialising in particular aspects of the subject. With such encouraging developments comes the risk of fragmentation of the discipline. Bob and Chris deserve great credit for the work they have done to ensure that *Accounting and Business Research* continues its vital integrative role as a leading full-range research journal.

The main change we have introduced is to assemble an editorial team capable of bringing specialised knowledge to bear in each of the core areas of accounting (financial reporting, management accounting and control, auditing, and financial statement analysis). The journal will continue to publish top quality articles in any area of accounting. Manuscripts dealing with finance and other aspects of business will continue to be welcome, as long as they are directly relevant to accounting or the work of accountants. To ensure the smooth processing of manuscripts, all correspondence with authors and referees will be handled by Ken Peasnell; editorial decisions will be made either by the editor or one of the associate editors, as the circumstances dictate.

K. V. Peasnell
M. Ezzamel
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Objective of Accounting and Business Research

The objective of *Accounting and Business Research* is the publication of substantial and original contributions to knowledge in the areas of accounting broadly defined. Articles should be empirical or analytical; rigorous, yet preferably intelligible to a wide audience of academics and, where appropriate, practitioners. Presentation should be as elegant and economical as possible, avoiding unnecessary words, numbers or symbols.

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The Provision of Other Services by Auditors: Independence and Pricing Issues

Lynn Barkess and Roger Simnett*

Abstract—This research has three objectives: to identify the extent and level of other services provided by incumbent auditors in the Australian business environment; to examine pricing issues by investigating the relationship between fees for other services and audit fees; and to address the question of independence by (a) identifying whether the incidence of audit qualification is related to the level of other services purchased and (b) investigating whether there is a relationship between audit tenure and the level of other services provided. Information on audit fees, fees for other services, size, audit qualifications, industry and auditor (Big 8(6)/Non-Big 8(6)) was obtained from publicly available information for the majority of the top 500 Australian companies listed on the Australian stock exchange between 1986-1990. This study provides evidence that an increasing number of clients are purchasing other services from their auditor. A significant positive relationship between fees paid for other services and audit fees was also identified. No relationship was identified between the level of other services and the type of audit report issued or audit tenure, supporting the view that audit independence is not compromised by provision of the other services.

Introduction

The work profile of public accounting firms has changed since the early 1980s, with evidence showing that the share of revenue from providing auditing services has fallen while the share of revenue from providing other services¹ has increased (Palmrose, 1986; Abdel-khalik, 1990; Craswell, 1991). Two major concerns have resulted from this trend: (1) pricing of the individual services where there is the joint provision of audit and other services, and (2) auditor independence.

The research literature addressing the issue of independence has emanated almost exclusively from the US and has generally found that 'there is no evidence that performing MAS has in any instance adversely affected independence' (Graham, 1988, p. 2).² However, independence issues continue to provide a focus for debate as the range of other services provided by public accounting

firms continues to expand. In Australia, concerns relating to independence issues are evidenced in the Public Sector Auditing Standards issued by the Australian National Audit Office in 1991, prohibiting the provision of other services by the independent auditor to Commonwealth public sector bodies without the prior consent of the auditor general. Further, while the Statement of Auditing Practice AUP 32, *Audit Independence* (1992), does not prohibit auditors from providing additional services, it does prohibit the auditor from 'performing and auditing the same work' (AUP 32, para. 42(b)) to ensure objectivity and maintain the perception of independence.³

In addressing the issue of pricing, one commonly mentioned advantage of providing other services is the potential cost advantages to the client arising from 'knowledge spillovers', which are transfers of knowledge that may occur when other services are provided by the incumbent auditor (Abdel-khalik, 1990). Knowledge spillover has been hypothesised to occur when 'the total costs of one firm jointly performing both non-auditing and auditing services are less than the sum of the costs when each service is performed by a different firm' (DeBerg, Kaplan and Pany, 1991, p. 20). However, evidence from the US suggests that such presumed cost savings are not necessarily being passed on to clients (Simunic, 1984; Abdel-khalik, 1990).

*Lynn Barkess is a lecturer and Roger Simnett associate professor at the School of Accounting, University of New South Wales. They acknowledge the helpful comments of A. Rashad Abdel-khalik, Alan Farley and Peter Roebuck as well as participants at seminars at Monash University and the University of New South Wales. The authors appreciate the financial support provided by Coopers & Lybrand and the University of New South Wales.

¹The terms *management advisory services (MAS)*, *non-auditing services* and *other services* have often been used interchangeably by previous researchers. However, in this research project the term *other services* will be used, primarily because this is the terminology used in the Australian Corporations Law.

²Bartlett (1991) suggested that the absence of evidence attesting to a lack of independence is, in fact, the result of two factors. First, the concept of independence as defined by the accounting profession does not lend itself easily to legal definition and as such inhibits legal action. Second, out of court settlements with no admission of liability prohibit open discussion.

³A further example is the debate concerning the provision of internal audit services by the incumbent auditor. The exposure draft on independence stated that the auditor 'should not also provide the internal audit function for that entity' (para. 41). This was altered in AUP 32 to reflect that such a situation 'may, therefore, place at risk the perception of the independence of the external auditor ...' (para. 45).

Other pricing issues have been raised in Australia, where Craswell (1992), having identified a fall in the audit fee ratio (audit fees/total assets), suggested that audit firms may be adopting a loss leader approach to ensure access to the more 'lucrative' other services market. AUP 32 outlines that such an approach is unacceptable: 'Recovery of the cost of an audit in any one period should not depend upon an expectation of recovery from the fees of future audits and/or other services to be provided to the client' (para. 25). However, as the market for audit services becomes saturated, one way for audit firms to maintain growth is by increasing the types of non-audit services offered by the audit firm (Hillison and Kennelley, 1988).

In examining the pricing issue, investigations into whether the consistent effects of 'knowledge spillovers' are reflected in audit fees have provided conflicting results. Research by Simunic (1984) and Palmrose (1986) identified a significant positive relationship between audit fees and other services fees, with higher audit fees being charged to those firms also purchasing other services. A more recent paper by Abdel-khalik (1990) found an absence of either costs or benefits accruing to purchasers of other services from the incumbent auditor. The main objective of this research project is to provide an empirical analysis using Australian data to identify whether there is an association between the audit fees and the fees for other services paid to an incumbent auditor.

The independence issue is addressed in two ways: (1) the audit reports of clients purchasing other services from their auditor are examined to determine whether they are less likely to receive qualified audit reports,⁴ and (2) the fees paid for other services for companies that change auditors and those that do not change auditors are compared to determine whether there is a relationship between the provision of other services and audit tenure. If management is more likely to dismiss an auditor after a qualified report, and if auditors providing other services to their clients face a potentially greater economic loss if the client changes auditor (Simunic, 1984; Hillison and Kennelley, 1988), then auditors providing other services to their clients may face an increased threat to independence and may be more likely to comply with management policies. This may result in a trade off between independence and economic issues with fewer and/or less serious audit qualifi-

cations being issued to clients purchasing other services.

There is an advantage to undertaking such research in Australia where the amounts paid to the incumbent auditor for other services fees are reported. This arises from Schedule 5 (Cl. 27(1 and 2)) of the Australian Corporations and Securities Legislation that has for many years required this disclosure. This rich data source is not readily available in other countries. The only other country known to require such disclosure is the UK, where recent changes to the UK companies legislation⁵ requires the separate disclosure of non-audit fees charged for accounting periods commencing after 1 October 1991.

Literature review and development of testable propositions

Pricing Issues

Research specifically investigating pricing issues connected with the provision of other services includes Simunic (1984), Palmrose (1986) and Abdel-khalik (1990). Simunic (1984) analysed the provision of other services by the incumbent auditor and tested for the pricing effects of knowledge spillovers, with the aim of determining whether efficiencies arising from knowledge spillovers are passed on to the audit client in the form of lower fees. Information relating to the years 1976 and 1977 was collected from 263 audit clients of Big 8 firms. The square root of total assets was the measure used to control for size, and the sample was divided into small (total assets less than US\$150 m) and large (total assets between US\$150 m and US\$300 m) companies. The results of this study indicated that companies purchasing other services from the incumbent auditor were similar to companies not purchasing other services with respect to rate of return, profitability and audit tenure.⁶ Significantly higher audit fees were identified as being paid by companies purchasing both audit and other services when compared with those companies not purchasing other services. These results suggest that not only are the benefits of knowledge spillovers, if they exist, not passed on to the client in the form of lower audit fees, but that clients of Big 8 auditors who also purchase other services pay relatively higher audit fees than clients not purchasing other services.

Palmrose (1986) extended Simunic (1984) by investigating the effect of providing specific types of other services on the level of audit fees paid by Big 8 clients. Widespread use of incumbent audi-

⁴Craswell (1988) supports this claim with evidence of increased auditor switching after a first time audit qualification. He suggests that the costs associated with a qualified audit report are non-trivial, including the effect on share prices (Ball *et al.*, 1979; Dodd *et al.*, 1984; Dopuch *et al.*, 1986; Eichenhofer *et al.*, 1989), managers' compensation (Chow and Rice, 1982) and a firm's ability to raise debt capital (Knapp and Elikai, 1988).

⁵The Companies Act 1989, Disclosure and Remuneration of Non-Audit Work, Regulation, 1991.

⁶These results were consistent for the year being studied, the previous year and the succeeding year.

tors providing other services was identified.⁷ These services were categorised into fees paid for tax preparation, fees paid for accounting related services and fees paid for non-accounting related services. Also included as a test variable were fees paid for other services provided by public accounting firms other than the incumbent auditor. For homogeneity and consistency with Simunic (1984), only Big 8 clients were included, with large clients (those companies with total assets between US\$150 m and US\$300 m) being found to purchase other services more frequently than those with assets of less than US\$150 m).

Palmrose's model controlled for size, complexity, internal control, whether public or non-public company, whether the audit report was qualified, and industry to determine whether the provision of other services affected the amount of audit fees paid by clients.⁸ The results of this study supported Simunic (1984) and provided evidence of a positive relationship between fees paid for audit services and fees paid for non-audit services.

Abdel-khalik (1990) suggested that it is intuitive that the provision of other services and audit services by the same firm should not result in increased audit fees. Specifically, Abdel-khalik examined the effect of knowledge spillovers on audit fees and the effect of estimates of the cost of auditor change on the client's ability to capture the cost savings associated with knowledge spillovers. The survey data, collected in 1987, related to 1986 information, with 84 usable responses. Firms were classified into whether or not the incumbent auditor provided other services. Abdel-khalik used the Heckman-Lee two-step method to correct for sample self-selection using explanatory variables classified as client-related, demand-related and auditor-related.⁹ The results of this study indicate an absence of cost (or benefit) arising from the selection of the incumbent auditor to supply other services.

Following Abdel-khalik's (1990) conclusion that 'it would not be rational for clients to pay higher audit fees simply because they also pay the firms of their auditors additional sums of money for MAS (other services)' (p. 320), it is asserted that clients are sophisticated and unwilling to pay more for the

provision of both services from the same supplier than from two different sources. This assertion is tested by the following null proposition:

P₁: Fees paid to the incumbent auditor for other services are unrelated to audit fees.

Independence Issues

The potential benefits associated with the incumbent auditor providing other services include a reduction in search costs to the client and increased efficiencies for the auditor resulting from knowledge spillovers. It has been suggested that these benefits are outweighed by disadvantages which include the potential impairment to independence. Simunic (1984) argues that the joint provision of other services and audit services may result in the auditor being less likely to disagree with management, where disagreement may result in dismissal. The cost of losing a client may be greater in cases where the audit firm has been able to retain some or all of the benefits¹⁰ associated with knowledge spillovers as economic rents. If these economic rents exist and firms are able to retain these economic rents, the pressures on the auditor to comply with management may be increased, particularly when the resources being used to earn these rents are not able to be transferred to an equally profitable alternative.

Since a qualified audit report is often an indication of some unresolved differences of opinion between management and the auditor, the auditor needs to be able to withstand management pressures in order to maintain independence. These pressures may arise through fee negotiation, withholding information relevant to the audit or threatening to put the work out for tender. Where the independent auditor also provides other services, the economic loss associated with dismissal is potentially greater than if other services are not provided. Therefore, where other services are provided by the auditor, a potential threat to independence may occur if management is able to increase the pressure on the auditor to issue an unqualified audit report. If auditors are more likely to face dismissal after qualifying a report (Craswell, 1988) and if the economic losses associated with dismissal are potentially higher for incumbent auditors providing other services than those that provide audit services only (Hillison & Kennelley, 1988), then it is suggested that auditors may be less likely to issue qualified audit reports to clients purchasing larger dollar values of other services.¹¹

⁷Out of a sample of 298, 87% or 259 companies were found to purchase other services with 224 (75%) purchasing those other services from the incumbent auditor.

⁸The following measures were used in the regression: size—log of total assets; complexity—(a) log of number of locations and (b) log of number of audit reports; and internal control—client estimates of the reduction in audit fees.

⁹Client-related variables included size (sales), dispersion (number of subsidiaries) and type (public or private). Demand-related variables included client evaluation of the cost of locating another audit firm, internal costs associated with adapting to a new auditor, and the client's tolerance for a fee increase. Auditor-related variables included Big-8/Non-Big 8, competition between local audit firms and degree of audit reliance on client internal controls.

¹⁰It is argued that these benefits occur because of the lower costs associated with the joint provision of services (Simunic, 1984; Palmrose, 1986; Abdel-khalik, 1990).

¹¹AUP 32 suggests that auditors receiving more than 15% of their total fees (i.e. audit fees and other fees), from one company or group of companies should consider and document the effect that this may have on independence.

As the level of other services provided by the auditor increases:

1. the auditor may become reluctant to qualify the audit report because of the possibility of losing the high levels of 'lucrative' other services;
2. there may be fewer reasons to qualify the reports of these companies because other services provided may ensure that the financial statements comply with the necessary professional and statutory requirements, and/or
3. the auditor may wish to avoid issuing a qualification relating to work provided by members of his or her own firm.

Therefore it is suggested that the following proposition should hold:

P₂: Incumbent auditors providing higher levels of other services to their clients will be less likely to issue qualified audit reports than auditors providing lower levels of other services to their clients.

It is also suggested that as the levels of other services purchased from the incumbent auditor increase there is a corresponding increase in the economic bonding between auditor and client, such that the auditor may be more likely to compromise their independence in order to ensure continued tenure (Beck, Frecka and Solomon, 1988); DeBerg, Kaplan and Pany, 1991). Therefore it is suggested that the following proposition should hold:

P₃: The tenure of auditors providing higher levels of other services to their clients will be more stable than the tenure of auditors who provide lower levels of other services to their clients.

Research methods

Data Set

The sample was drawn from the Top 500¹² publicly listed companies in Australia for each of the years 1986 through to 1990. The sample consisted of 371 companies in 1986, 403 in 1987, 466 in 1988, 463 in 1989 and 391 in 1990.¹³ The large number of observations (2,094 in total), and the fact that the information used has been taken from

published financial reports that have been externally verified, should significantly increase the confidence that can be placed in the results.

Variables

Dependent variable—other services fees (OTH-FEES). The dollar amounts paid to auditors for other services were collected from published financial statements. This continuous variable was transformed to the natural log to ensure a better fit to the regression line. This technique is consistent with Palmrose (1986) and Butterworth and Houghton (1992).¹⁴

Independent (control) variables. In order to examine the pricing effects associated with the provision of other services by the incumbent auditor, it was considered necessary to control for those other variables that have been identified in previous research as affecting fees for other services and audit fees. These were:

Auditee size—Two measures were used to control for auditee size, the natural log of sales (SALES) and the natural log of total assets (TOTASS). The absolute dollar value for sales and total assets was transformed by the natural log to ensure a better fit to the regression line. The use of the log of total assets is consistent with Palmrose (1986) and the control for size using the log of sales is consistent with Abdel-khalik (1990).

Audit qualifications (AUDQUAL)—A dummy variable was used to control for whether a company had a qualified (1) or unqualified (0) audit report. It has been argued that a qualified audit report signals: (a) an increased amount of evidence collection, and potentially increased audit fees, and (b) an increased risk of adverse actions against the auditor (Simunic, 1980; Palmrose, 1986; Francis and Simon, 1987; and Butterworth and Houghton, 1992).

Auditor (AUDITOR)—The dummy variable (Big 8(6) = 0, Non-Big 8(6) = 1) has been used as a measure for auditor. This is consistent with Simunic (1984) and Palmrose (1986)¹⁵ and has been used to control for any pricing effects that may be associated with Big 8(6)/Non-Big 8(6) firms (Francis and Simon, 1987). Simunic (1980) identified a significant increase in Big 8 market dominance as the size of the audited company increased, with the issue of whether the auditor was a Big 8/Non-Big 8 auditor being an important determinant of audit cost. How-

¹²Companies are selected on the basis of market capitalisation.

¹³Information relating to some of the top 500 companies was not collected for the following reasons: (1) Microfiche unavailable—the Microfiche for some of the top 500 companies was not available at the time of collection; (2) ASX code—inability to code by ASX code for some companies; (3) Incomplete data—where complete data was not available companies were dropped out of the sample.

¹⁴Butterworth and Houghton transformed their data using log 10.

¹⁵Both Simunic and Palmrose restricted their sample to companies with Big 8 auditors.

Table 1
Correlation Matrix (1990)

	SALES	OTHFEES	AUDFEES	AUDQUAL	AUDITOR	IND2	IND3	TOTASS
SALES	1.000							
OTHFEES	0.694	1.000						
AUDFEES	0.810	0.811	1.000					
AUDQUAL	-0.063	-0.010	-0.031	1.000				
AUDITOR	-0.186	-0.208	-0.191	-0.005	1.000			
IND2	0.212	0.133	0.242	-0.104	-0.025	1.000		
IND3	-0.188	-0.077	-0.148	0.012	0.000	-0.646	1.000	
TOTASS	0.790	0.669	0.776	-0.004	-0.132	0.005	-0.050	1.000

ever, while Simunic (1980) suggested that the economies of scale enjoyed by the Big 8 are passed on in the form of lower audit costs to the client, Francis (1984) and Francis and Simon (1987) found evidence to suggest that Big 8 audit firms receive premium fees from both small and large companies.

Industry (IND1) (IND2) (IND3)—ASX industry codes were recoded into

- (1) IND1, finance industry (1), or other (0);
- (2) IND2, manufacturing company (1), or other (0); and
- (3) IND3, mining company (1), or other (0).

Previous research has identified significant industry effects when investigating items associated with fee determinants. Simunic (1984) and Palmrose (1986) used industry indicators as a control variable when testing for audit fee determinants. Simunic (1984) found a significant result for both large and small groups for his industry variable, a dummy variable of finance/non-finance comparisons.

In evaluating a listing of companies on the Australian stock exchange, three major classifications can be identified: (i) mining and oil, (ii) finance associated and (iii) retail/manufacturing/diverse. As these three categories are dummy variables in a regression, it is necessary to include two categories having a (0,1) value.¹⁶ The two categories included were IND2 and IND3 (Mining (1), Other (0)).

Audit fees (AUDFEES)—The dollar amounts paid to auditors for audit fees were collected from published financial statements. These continuous variables were transformed by the natural log to ensure a

better fit to the regression line. This technique is consistent with Simunic (1984) and Butterworth and Houghton (1992).¹⁷

Statistical Techniques

The model used to test whether there is any relationship between the provision of other services and audit fees is:

$$\begin{aligned} \text{OTHFEES} = & \alpha + \beta_1(\text{SIZE}) + \beta_2(\text{AUDQUAL}) \\ & + \beta_3(\text{AUDITOR}) \\ & + \beta_4(\text{IND3}) + \beta_5(\text{AUDFEES}) \\ & + \beta_6(\text{IND2}) \end{aligned}$$

The results reported are the regression equation with all variables included, and the equation containing only the significant variables.

The backward stepwise regression technique is used to eliminate insignificant variables from the equation. This technique is used because of significant correlation between the individual variables identified in each of the years being investigated. Table 1, which contains the 1990 correlations, is representative of any of the years.

This procedure was followed including only those companies electing to purchase other services from their auditor. There are two reasons for analysing only these companies. First, Abdel-khalik (1990) suggested that the decision to purchase other services from the incumbent auditor meant that the company, in effect, had self-selected into that group. By excluding those companies that only purchased audit services, it is expected that differences between these two groups, i.e., those that purchase other services from their incumbent auditor and those that do not purchase other services from their incumbent auditor, will be removed from the equation. Second, the statistical problem of having a number of observations at an extreme point of the scale for the dependent variable is eliminated.

¹⁶The information content associated with the third industry category (Finance) is included in the constant (α) as three dummy variables would introduce the problem of perfect correlation, with the value of the three variables summing to one.

¹⁷Butterworth and Houghton transformed their data using log 10.

Table 2**Entire Sample: Results of Regression****Dependent Variable = Other Services**

<i>Independent variables</i>	<i>1986</i>	<i>1987</i>	<i>1988</i>	<i>1989</i>	<i>1990</i>
SALES					
Beta	0.058	0.004	-0.006	0.082	0.106
T-test	0.828	0.062	-0.098	1.456	1.962
Sig T	0.408	0.951	0.922	0.146	0.051
AUDFEES					
Beta	0.662	0.744	0.728	0.713	0.733
T-test	9.450	11.444	11.919	12.702	13.507
Sig T	0.000	0.000	0.000	0.000	0.000
AUDQUAL					
Beta	-0.062	-0.009	0.005	0.067	0.012
T-test	-1.529	-0.246	0.129	2.118	0.394
Sig T	0.127	0.806	0.817	0.035	0.694
AUDITOR					
Beta	-0.089	-0.102	-0.096	-0.079	-0.050
T-test	-2.165	-2.780	-2.752	-2.515	-1.560
Sig T	0.031	0.006	0.006	0.012	0.120
IND2					
Beta	-0.109	-0.075	-0.077	-0.072	-0.067
T-test	-1.940	-1.535	-1.634	-1.735	-1.589
Sig T	0.530	0.126	0.103	0.083	0.113
IND3					
Beta	-0.097	-0.051	-0.031	-0.056	-0.000
T-test	-1.762	-1.055	-0.654	-1.364	-0.008
Sig T	0.790	0.292	0.514	0.173	0.993
ADJUSTED R²	0.519	0.573	0.530	0.619	0.663
F-RATIO	54.45	73.62	74.19	107.60	113.00
Sig F	0.000	0.000	0.000	0.000	0.000

Results

Descriptive Statistics

On average, 85% of companies in the sample purchased other services from the incumbent auditor. This was higher than the 75% identified by Palmrose (1986).¹⁸ A steady average increase in the percentage of clients purchasing other services from their auditor each year was identified, increasing from 82.7% in 1986 to 88.7% in 1990. Big 8(6) auditors provided other services to 91.2% of their clients in 1990, increasing from 86% in 1986, with Non-Big 8(6) auditors providing other services to 76.7% of their audit clients in 1986 and 81.4% of their clients in 1990.

The ratio of audit fees to total assets was consistent over the five years, varying between 0.11% and 0.12%. Thus the decreasing trend identified for the early 1980s by Craswell (1992) appears to have levelled off during the second half of the 1980s. The ratio of other services fees to

total assets continued the increasing trend identified for the early 1980s (Craswell, 1991), increasing from 0.06% in 1986 to 0.08% in 1990. This shows that public accounting firms continued to generate a higher proportion of their fee revenue from the provision of other services.

Pricing Issues: The Relationship Between Other Services Fees and Audit Fees

The relationship between fees paid for other services and audit fees was investigated by regression analysis, with the dependent variable being other services fees. The results of the regression, using the log of sales to control for size, are shown in Tables 2 and 3. Table 2 contains the results obtained by including all the variables in the regression equation, while Table 3 contains the significant variables remaining after using a backwards stepwise approach.

Each of the five years is analysed and reported separately. This gives confidence that the results are not due to either sample selection bias or year of choice. The results were reasonably consistent over the five years. Audit fees (AUDFEES) were

¹⁸Palmrose's (1986) study used a sample of 298 public and privately held companies all of whom had Big 8 auditors. The data related to 1980/81.

Table 3
Entire Sample: Results of Backward Regression
Dependent Variable = Other Services

<i>Independent variables</i>	1986	1987	1988	1989	1990
SALES					
Beta					0.088
T-test					2.030
Sig T					0.043
AUDFEES					
Beta	0.724	0.828	0.824	0.904	0.894
T-test	17.081	20.214	20.366	24.520	13.701
Sig T	0.000	0.000	0.000	0.000	0.000
AUDITOR					
Beta	-0.313	-0.370	-0.377	-0.279	
T-test	-2.303	-2.769	-2.862	-2.354	
Sig T	0.022	0.006	0.004	0.019	
IND2					
Beta					-0.233
T-test					-2.131
Sig T					0.034
ADJUSTED R²	0.513	0.566	0.523	0.611	0.657
F-RATIO	157.42	424.75	427.21	617.15	655.37
Sig F	0.000	0.000	0.000	0.000	0.000

identified as having a highly significant positive effect on the percentage changes in other services fees (OTHFEES) in each of the years studied ($p = 0.0000$), i.e., high levels of audit fees are significantly associated with the purchase of high levels of other services. AUDITOR was also significant for four of the five years, with significantly higher levels of other services fees identified for clients of Big 8(6) auditors in 1986, 1987, 1988 and 1989. The adjusted R^2 also showed that a significant amount of variation was being explained, ranging from 51.9% in 1986 to 66.3% in 1990.

The results were re-run using the natural log of total assets as the size variable in place of sales. AUDFEES was still significant for 1986–1990 at approximately the same level of significance, as was AUDITOR for the period 1986–1989. No other variable was significant, with the exception of TOTASS, which was positively associated with other services fees in each of the five years. This showed that, after controlling for the other variables, larger firms as measured by total assets had a tendency to purchase greater amounts of other services, while larger firms as measured by sales did not.¹⁹

The results of this analysis provide support for Simunic (1984) and Palmrose (1986), who found a

positive relationship between audit fees and the provision of other services. This analysis provides evidence to reject P_1 , which stated that the level of other services fees paid to the incumbent auditor will have no relationship to the level of audit fees paid, and suggests that after controlling for size, auditor, audit qualifications and industry, audit fees are positively associated with other services fees.

Independence Issues: The Relationship Between Other Services Fees and Audit Qualifications

From the total of 2,094 audit reports, 308 were qualified. No relationship was identified between the type of audit report and the level of other services provided, with the results of the t-tests of differences being insignificant in each of the years studied. These results, shown in Table 4, provide no support for P_2 , that auditors will be less likely to issue a qualified audit report to clients purchasing high levels of other services.

Independence Issues: The Relationship Between Other Services Fees and Audit Tenure

Only those firms that were on the database for each of the five years are included in this analysis. There are 194 companies included in this section of the analysis, with 52 changing auditor and 142 not changing auditor during the five-year period studied. Univariate analysis in the form of a t-test will first be used to investigate whether there is a relationship between the log of other services fees and audit tenure. If a relationship is found, or

¹⁹In controlling for potential heteroscedasticity, the Weighted Least-Squares (WLS) regression approach reported in Davis, Ricchiute and Trompeter (1993) was also undertaken. The results of this WLS regression analysis supported the OLS regression results reported in this paper.

Table 4 Univariate Analysis Relationship Between Other Services Fees and Qualified/Unqualified Audit Report					
Independent variables	1986	1987	1988	1989	1990
No. Obs					
Qualified	56	67	61	67	57
Unqualified	315	336	405	396	334
T-ratio	0.66	-1.23	0.71	0.02	0.57
2-tailed prob.	0.509	0.224	0.479	0.983	0.318

tenure is significantly correlated with other variables in the regression equation, then an additional variable will be added to the regression equation to test for the affect of audit tenure. Where a company was listed on the entire database for each of the five years, the variable TENURE was coded as (0) if the company changed auditors during the period or (1) if the company did not change auditors during the period.²⁰

For the 52 organisations that changed auditor and for which data was available for all years, the mean of fees paid for other services was A\$13,952 in the year of change and A\$186,135 in the year following the change. These results indicate that clients may change auditor in order to gain access to higher levels of other services. The mean of audit fees was A\$332,351 in the year of change and A\$386,135 in the year following the change. This percentage increase in audit fees (16%) is consistent with the percentage increase in audit fees observed for all organisations. These results seem to discount the notion that firms change auditors in order to reduce audit fees.

A limitation of this research is that the other services provided have not been broken down by type i.e., recurring and non-recurring (Beck, Frecka and Solomon, 1988; DeBerg, Kaplan and Pany, 1991), therefore it is not possible to identify the type of other services that increased after changing auditor. The finding that other services fees have increased significantly in the year following the change is inconsistent with DeBerg *et al.* (1991) who found that in the US purchases of other services declined significantly in the year following a change of auditor.

In analysing the correlation matrix, tenure was not significantly associated with any of the variables.²¹ Univariate analysis further supported the

assertion of no significant relationship between other services fees and audit tenure ($t = 0.121$, $p = 0.90$).²² Multivariate analysis, while supporting the earlier results, found no significant association between other services fees and TENURE.²³ Thus, there is no support for P_3 , that the tenure of auditors providing higher levels of other services to their clients will be more stable than the tenure of auditors who provide lower levels of other services to their clients.

Results and discussion

This paper includes an analysis of pricing and independence issues associated with the provision of other services by incumbent auditors. There is evidence to suggest that the provision of such services is becoming more important in the total revenue structure of the audit firms. The findings in this paper indicate a steady average increase in the percentage of clients purchasing other services from their auditor each year, increasing from 82.5% in 1986 to 88.8% in 1990. While the ratio audit fees to total assets was relatively static in the period 1986 to 1990, a steady increase was observed in the ratio of other services fees to total assets.

Pricing issues concentrated on the relationship between audit fees and other services fees. This issue is topical given the recently released AUP 32 in Australia that prohibits audit fee recovery from the pricing of other services. If either knowledge spillovers or audit fee recovery exists, a negative relationship between audit fees and other services fees should be observed. After controlling for factors that have been found to influence audit fees, a positive relationship between audit fees and

²⁰Where a company changed from one Non-Big 8(6) auditor to another Non-Big 8(6) auditor, this was treated as not being a change of auditors. The changes that are examined in this research are changes between each of the Big 8(6) auditors and between Big 8(6) and Non-Big 8(6) auditors.

²¹The variable that tenure was most associated with was auditor, a correlation coefficient of 0.160 with greater tenure associated with Big 8(6) auditors. An analysis of the changes in auditor reveals a trend towards the Big 8(6) firms.

²²Additional analysis was run using total fees and TENURE. The results were also insignificant ($t = 0.052$, $p = 0.90$).

²³The results of the backwards stepwise regressions using sales, and then total assets to control for size found that tenure had no effect on the level of other services provided by the auditor. Consistent with the results concerning pricing, the main item relating to the provision of other services was audit fees. Where the auditor was a Big 8(6) auditor, significantly higher other services were purchased, with significant industry effects being identified for both manufacturing and mining.

other services fees was identified. While this was consistent with some prior research (Simunic, 1984; Palmrose, 1986), it does not support the expectation that clients are sophisticated and unwilling to pay more for the provision of both services from the same supplier than from two different sources.

A discussion of Abdel-khalik's paper by Solomon (1990) suggested four reasons for a significant association between audit fees and other services fees. The first was that clients who purchased both audit and other services from the external auditor could have been 'problem' firms that required other services along with an extraordinary quantity of audit services. The research reported in this paper, by using objective measures of the level of other services fees (as distinct from simply determining whether or not other services were provided), allows us to qualify this finding by concluding that these 'problem' firms must be requiring an 'extraordinary quantity' of other services along with an 'extraordinary quantity' of audit services. The second possibility forwarded was that certain other services (e.g., information systems services) can create changes in the client's organisation that have non-trivial audit implications. The consistency and significance of our results over five years suggest that either these one-off or non-recurring other services occur frequently, or the same positive relationship exists between audit fees and most types of other services provided.

The third possibility forwarded was that the other services market may not be competitive. This would be the most likely explanation if all other explanations are discounted. The fourth possibility concerns the arbitrary categorisation of fees. The suggestion is that, as a result of the relatively greater power traditionally held by audit partners, some of the other services fee income is disclosed as audit fee income. For this possibility to hold, a positive association must exist between the provision of other services and audit fees, but a negative association is suggested between the amount of other services fees and audit fees, as the total fee pool is divided between these forms of fees. This possibility is discounted by our findings which reveal a significant positive association between the amount of other services fees and audit fees.

While it is possible that auditors may be entrenched in organisations, and able to demand premiums on both audit fees and other services fees, it is also possible that some of this result is due to uncontrolled variables. One variable that may affect both audit fees and other services fees is complexity of the client. Additional research is required to identify why a positive relationship between audit fees and other services fees exists. In order to confirm or discount the

other possibilities forwarded, future research should categorise the types of other services provided.

Independence issues were also examined. It was argued that where large dollar values of other services were provided, the auditor would be less likely to qualify the accounts or to engage in other conflict situations that would lead to the auditor being replaced. No relationship was identified between the dollar value of other services fees and either audit qualifications or audit tenure. In a further examination of audit tenure, it was found that, on auditor change, there was a large increase in the values of other services provided by the new incumbent auditor. This conflicts with earlier findings in the US, and suggests that a major reason for switching auditors in Australia is to gain access to the range of other services they supply.

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Accountants' Attitudes and Environmentally-sensitive Accounting

Jan Bebbington, Rob Gray, Ian Thomson and Diane Walters*

Abstract—Accounting for the environment (ICAEW, 1992) is receiving increasing attention. A series of initial interviews, visits and other contacts with a wide range of organisations and accountants on three continents left us with the impression that accountants and accounting do not appear to be involved in corporate responses to the environmental agenda. This paper is an exploration and examination of that impression. A mail questionnaire survey confirmed that accountants have low levels of involvement in their company's environmental activities and, from responses to personal opinion questions, appear to experience a conflict between their awareness of environmental issues and an inability to translate this into action within their corporate life. These attitudes are explored in the paper and would be a sufficient explanation for the absence of environmental accounting in practice.

Introduction

The increasing awareness of the importance of the natural environment has stimulated a re-examination of the relationship between business and the biosphere (see, for example, Cairncross, 1991; Elkington, 1987; Elkington, Knight and Hailes, 1991; Schmidheiny, 1992). This has brought with it recognition of the role that accounting appears to play in the process of environmental degradation (Gray, 1990). The response from the accounting profession has been swift and uncompromising (see, for example, Lickiss, 1991; ICAEW, 1992; CMA, 1992; CICA, 1992). This recognition of the role that accounting does play in the business-environment relationship and the role that it should play in helping re-orientate business actions to the biosphere has been widely echoed by accounting practitioners and academics (see, for example, Derwent, 1989; Dewhurst, 1989; Gilkison, 1992; Gray, 1992; Kestigan, 1991; Maunders and Burritt, 1991; Owen, 1992; Rubenstein, 1992; Zuber and Berry, 1992) and, perhaps more interestingly, by the business and political communities (see, for example, ACBE, 1993; UNCTC, 1992; European Community, 1992; Tennant, 1993).

One might reasonably expect that such widespread, and unusually unanimous, views would lead to changes in practice. However, there is little evidence of an actual response in accounting practice (ICAEW, 1992; KPMG, 1992; Gray and Owen, 1993; Gray, Bebbington and Walters, 1993). Indeed, in the UK, such evidence as exists is not incompatible with a very partial, somewhat confused and potentially directionless response from accounting practitioners (Coopers and Lybrand, 1990, 1992; Ball and Maltby, 1992).

This paper is an attempt to explore this situation further. In particular, the paper is concerned with: (i) whether or not accountants are involved in their organisation's response to the environmental agenda; (ii) the extent to which accountants are developing 'environmental accounting'; and (iii) an initial attempt to shed some light on the reasons why accountants are, or are not, responding to the calls from the profession, business and politics.

Background

Faced with the general scenario outlined above, Gray, Bebbington and Walters (1993) attempted to explore what was meant by 'environmental accounting' in practice, to what extent accountants and accounting were involved in organisations' environmental response and what practical guidance could be offered to accountants wanting to respond to the widespread calls for 'environmental accounting'. Gray *et al.* (1993) report on a series of interviews, site visits and investigations undertaken with UK, New Zealand and Canadian organisations and conclude that not only are accountants rarely involved in environmental matters but that senior management were rarely able to see *why* the accounting function might contribute to the environmental development of their organisation, (see also Coopers and Lybrand, 1990, 1992). That

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is, Gray *et al.* appear to have identified an 'absence' of accounting that deserves further, more direct investigation (see, for example, Choudhury, 1988; Hines, 1992). This is our starting point.

What we appear to be faced with is a general climate of opinion that should encourage accountants to undertake action ('environmental accounting'). The first stage of our investigation, then, is to explore what action, if any, is being undertaken by accountants. This climate, however, does not appear to have had a universal influence on business management (Gray *et al.*, 1993) and only a patchy influence on accountants themselves (Coopers and Lybrand, 1992). If we are to take the environmental accounting debate further it seems sensible to try and look for intervening variables between the climate (e.g. ICAEW, 1992) and action (e.g. the involvement of the accountant in the organisation's environmental agenda). In a functional world, three such variables can be posited: knowledge, opportunity and volition (see, for example, Ajzen and Fishbein, 1980; Fishbein and Ajzen, 1975; Lawler and Rhode, 1976; Rokeach, 1976, 1985; Schifter and Ajzen, 1985; but see also Ferguson, 1988; Newman *et al.*, 1989).¹ Of these, we concentrated on 'volition' via an examination of 'attitudes'. This was for two reasons: first, volition is the more powerful element in the determination of action and second, the other elements—knowledge and opportunity—can be derived if the volition is present.

More particularly, the *knowledge* necessary for developing some form of 'environmental accounting' is widely available (see, for example, Derwent, 1989; Gray, 1990; Lickiss, 1991; ICAEW, 1992). Not only could an accountant with 'volition' easily acquire information on the various possibilities for environmental accounting (for more detail, see below) but also 'accounting for the environment' involves many elements that are simply extensions of current accounting practice—on, for example, contingent liabilities and provisions. Equally, the *opportunity* for innovation potentially exists because senior accountants are normally to be found as part of the senior management team of an organisation—not as an isolated function. Thus opportunities for involvement with the organisation's developing environmental agenda can be expected to present themselves.

And even if this analysis is incomplete, the importance of attitude in encouraging a movement

towards action seems well-established (see, for example, Lyne, 1992; Newman *et al.*, 1989)² and has already been successfully applied in analysing responses to the environmental agenda (see, for example, Scheepers and Nelissen, 1989; Nelissen and Scheepers, 1992).

This gave us two of the elements of our study—the (non)actions of accountants and the role of attitudes in determining those (non)actions. To this was added Gray *et al.*'s (1993) outline of what might constitute 'environmental accounting' (see Figure 1) and Elkington's (1987) '10 steps to environmental excellence' (see Figure 2) that have proved to be a robust guide to the stages organisations need to undertake if they are to embrace the changing environmental agenda. With these elements we then proceeded to undertake the survey.

Research method

The survey was conducted early in 1992 by postal questionnaire addressed to the finance directors of the 1,000 top UK companies (as listed at the time by the most recent *The Times* 1,000). The concentration on finance directors reflected our desire to gather opinion and attitude about the company as a whole³ whilst still talking to accountants (see, for example, Coopers and Lybrand, 1990, 1992) and the choice of the largest companies reflected other evidence that suggests larger companies are more likely to have responded to the environmental agenda than small or medium-sized companies (see, for example, Belkaoui and Karpik, 1989; Gray and Collison, 1991; Gray, 1993).

The questionnaire⁴ comprised three broad sections that concentrated on (a) background data of the company; (b) the company's current activity with regard to the environment—including accounting initiatives and the accountants' involvement; and (c) information about the respondents and their attitudes to various issues. The questionnaire reflects the material discussed in the foregoing sections and was piloted, first on colleagues and then in interview with senior executives of companies. Mailing was followed up with a postcard reminder one month later (see below). 350 replies

¹This does not, in any sense, preclude an examination of the organisational context in which the accountant operates. It is more than likely that the organisational context provides a major constraint on some aspects of the accountants' role. However, it seems to us that it is unlikely that all aspects of the accountants' role are circumscribed. Our focus is on the calls for accountants to respond to the changing environmental agenda and therefore on their willingness, personal ability, knowledge and freedom to innovate as a professional group.

²We should also cite the work of Pat Barker of Dublin City University which explores these issues in considerable depth in the context of disclosure of information to employees. This work is not in the public domain at the time of writing but we wish to acknowledge here the considerable benefit we derived from that work.

³The questionnaire distinguished between personal views and statements about the company. Naturally, one manager, no matter how senior, can speak exclusively for a complex organisation but as a senior member of the management team, the finance director can be expected to know the 'facts' we sought.

⁴The full questionnaire and a more detailed explanation of the statistical analysis is available from the authors.

Figure 1**Some Potential Elements of Environmental Accounting****General:**

- Involvement with environmental policy;
- Involvement with environmental audit/review;
- Involvement with the development and monitoring of environmental management systems (including BS 7750, Eco-audit and Eco-label);
- Involvement with environmental impact assessments;
- Assessment of sustainability.

Management accounting and costing:

- Accounting for energy usage and costs;
- Accounting for waste, pollution and disposal;
- Accounting for recycling, packaging and containers;
- Budgeting and performance appraisal;
- Investment and investment appraisal;
- R&D, forecasting and design;
- Involvement with life-cycle assessment;
- Merger and acquisition activity.

External reporting and audit:

- Lending, insurance and shareholders;
- Contingent liabilities, remediation and provisions;
- Asset (e.g. land and inventory) valuation;
- Environmental spending and commitments;
- Statutory audit implications;
- Environmental reporting in financial statements;
- Separate environmental reporting.

Adapted from Gray, Bebbington and Walters (1993).

were received of which 181 were usable.⁵ We then tested for validity, response bias and generalisability of the results.

Validity and response/non-response bias

Response/non-response bias was tested in three basic ways (Wallace and Mellor, 1988; Wallace and Cooke, 1990): (i) using the first and second waves of responses (to the first mailing and to the reminder) we investigated differences in both responses and in corporate profiles; (ii) we assessed the extent to which our overall responses appeared to reflect the characteristics of the population of *Times* 1,000 companies; and (iii) we compared the results of our survey with other surveys for those elements that appeared compatible. The results of these tests lead us to conclude that there is a response bias in our analysis—one that emphasises larger companies and those in the (traditionally assumed) more environmentally-sensitive indus-

tries (typically pharmaceuticals, chemicals, aerospace and defence and extractive industries—see, for example, Dierkes and Preston, 1977; Cowen *et al.*, 1987). Thus, if anything, we might anticipate that our results *overstate* the extent of environmental accounting and perhaps paint a more positive picture of the attitudes of accountants to the environmental agenda in their companies than will be true for the top 1,000 as a whole.⁶ In particular, the number of respondents claiming that their company discloses its environmental policy, discloses quantified environmental data, shows environmental financial data in its financial statements, undertakes accounting for energy and wastes and integrates environmental criteria into its investment appraisal procedures is higher than previous surveys of UK company practice (see, for

⁵ 138 were returned as either unwilling to participate or non-participation is part of company policy. 31 were returned-to-sender. 95% of usable responses came from qualified accountants. Of these, 80% were designated as finance director, chief group accountant, financial controller or company secretary. 15% of the usable responses were from other accounting and finance-related personnel. Of the non-usable responses the equivalent numbers were 81% and 4%.

⁶ In more detail, the tests were conducted using z-scores and/or chi-square tests at a 95% confidence limit. The first and second wave yielded some differences in responses to particular questions and some slight differences in individual characteristics but overall this was not statistically significant. Comparing all respondents with all non-respondents the respondents were significantly larger on all measures of size. The differences in industry-response *looked* different but were not statistically significant at this level of confidence. The comparison with other surveys produced results that are broadly plausible as comparable with this survey. For more detail on these matters please contact the authors who will supply a discussion paper that expands on these questions.

Figure 2
Elkington's 10 Steps to Environmental Excellence

1. Develop and publish an environmental policy;
2. Prepare an action programme;
3. Arrange organisation and staffing including board representation;
4. Allocate adequate resources;
5. Invest in environmental science and technology;
6. Educate and train;
7. Monitor, audit and report;
8. Monitor the evolution of the green agenda;
9. Contribute to environmental programmes;
10. Help build bridges between various interests.

Source: J. Elkington *The Green Capitalists* (with Tom Burke) (London: Victor Gollancz) 1987

example, ICAEW, 1992; Coopers and Lybrand, 1992; Owen, 1992; Gray, 1990, 1993; Gray and Collison, 1991; Gray *et al.*, 1993). This is consistent with a biased sample but may also reflect a degree of optimism in the respondents' perceptions of activity. This positive bias is recognised in the following analysis.

Internal validity of the questionnaire was examined by reference to an assessment of the internal integrity of respondents' answers.⁷ Two areas permitted comparison: environmental disclosure in which the results were not statistically different at 95%; and development of environmental policy in which (complementary) answers were not statistically different either. We take confidence from this.⁸

Results

The results are presented in three stages. First, we provide a brief overview of the respondents' opinions about the level of activity in the company concerning environmental disclosure and 'environmental accounting' in its widest sense. Second, we provide further descriptive statistics about the accountants' perceived level of involvement with these activities. The third and substantive stage is the analysis of the accountants' attitude scores and their relationships with other factors in the questionnaire.

Company Activity

The 'company activity' section of the questionnaire distinguished between environmental disclosure and internal environmental accounting. The

respondents' responses on environmental disclosure are summarised in Table 1.

Two areas of Table 1 deserve note. First, 'pre-empting legal requirements and dispelling rumours' are the most widely cited reasons in the social reporting literature for disclosure of voluntary social/environmental information (see, for example, Parker, 1986; Guthrie and Parker, 1989; Roberts, 1992; Patten, 1992) but were identified by only 11% of our respondents as significant reasons for disclosure. Reasons for *non-disclosure* generally accord with other analyses (see, for example, Aupperle, 1984; Filios, 1985; Jones, 1990; Gray *et al.*, 1993) except that the 76% who cited 'unsure how to proceed' and the 41% who cited 'never thought of it' as principal reasons for non-disclosure are not anticipated by the literature. Furthermore, information sensitivity, a reason often given for non-disclosure (see, for example, Gray, Radebaugh and Roberts, 1990), was only cited by 33%.

Table 2 summarises respondents' statements on the status of a putative environmental accounting within their company.

Column 2 would permit the inference that a substantial minority of UK companies have, or intend to develop, some form of environmental accounting practice. The ranking of these figures, showing energy, investment appraisal and wastes as the dominant concerns, would accord with current thinking on best accounting practice in this field (see, for example, ICAEW, 1992; CMA, 1992; Coopers and Lybrand, 1992; Gray, 1990, 1993; Gray *et al.*, 1993).⁹ Columns 3, 4, and 5 report that accountants, unsurprisingly, are more aware of the

⁷This did not arise from deliberate use of 'check-questions' as we are unconvinced of the morality and efficacy of such practice (see, for example, Moser and Kalton, 1971). However, where overlap did arise, we were content to leave it in as a sort of 'positive redundancy'. We do not place too high a reliance on this analysis as a result.

⁸However, a low response rate to question 11 suggested that our experiment with a non-consistent scale in the questionnaire may have been unsuccessful. We have, however, interpreted the actual responses to question 11 as reliable and that it was the non-response to this question which reflects the confusion.

⁹However, the proportion of companies undertaking these activities is higher than expected and, again, perhaps reflects the bias—and possibly the optimism—in the results.

¹⁰However, current experience in the UK suggests that financially-based systems are developing only slowly and lagging behind other areas of practice (see, for example, Elkington *et al.*, 1991). It is normally assumed that the financial and the statistical information systems, ideally, need to evolve together (see, for example, Schmidheiny, 1992; Business-in-the-Environment, 1991; 3M/Environment Council, 1991).

Table 1
Summary of Significant Respondents' Statements on their Company's Environmental Disclosure

<i>Percentage of respondents</i>	<i>Activity or reason for (non)activity</i>
Levels of environmental disclosure	
40%	Have some environmental disclosure
55%	Intend to have some environmental disclosure in the future
21%	Have published an environmental policy
14%	Provide some financial and/or quantitative data
30%	Intend to provide financial and/or quantitative data in the future
Perceived reasons why the company does/will disclose environmental data	
43%	Company's pride in environmental record
35%	Shareholders' and public's right to information
11%	Pre-empting legal requirements and dispelling rumours
Perceived reasons why company does not disclose environmental data	
76%	Unsure about how to proceed
60%	Lack of a legal requirement, benefits do not exceed the costs and insufficient demand for the information
41%	Never thought of it
33%	Information sensitivity

financially-based approaches to environmental accounting than those based on non-financial data.¹⁰ By way of contrast, though, columns 6, 7 and 8 in Table 2 report the number of respondents who had never heard of a particular environmental accounting approach and/or had no intention of exploring it. These figures are particularly of concern on matters such as contingent liabilities, investment

appraisal and environmental budgets. Guidance to the accounting profession has been most frequent on these issues and these are the areas where corporate response to the environmental agenda depends most crucially on a corresponding response from the accountants and the accounting systems.

Whilst a minority of accountants appear to be

Table 2
Status of Accounting for Environmentally-related Activities in Respondent Companies

<i>Status of accounting for ...</i>	<i>Financial or statistical</i>	<i>Financial and statistical</i>	<i>Financial only</i>	<i>Statistical only</i>	<i>Financial and statistical</i>	<i>Financial only</i>	<i>Statistical only</i>
	<i>Currently doing or thinking about doing (%)</i>	<i>Currently doing or thinking about doing (%)</i>			<i>No plans to undertake or never heard of (%)</i>		
Energy	56	37	52	40	44	48	60
Investment appraisal	46	22	44	24	55	56	76
Wastes	41	21	35	27	59	65	73
Returnable containers/packaging	33	23	30	25	67	70	75
Legal compliance	32	13	28	17	68	72	83
Environmental budgets	27	9	25	10	73	75	90
Water pollution	26	10	14	22	75	86	78
Recycling	25	13	20	18	75	80	82
Contingent liabilities	25	7	24	7	76	76	93
Remediation costs	22	8	19	10	78	81	90
Air pollution	21	7	10	17	80	83	90
Land pollution	19	6	10	14	81	90	86
Sustainability	12	5	11	6	88	89	94
Life-cycle analysis	12	4	8	8	88	92	92

Table 3
Accountants' Level of Involvement in Environmentally-related Activities

Activity with which accounting staff involved	Percentage of companies undertaking activity	Degree of involvement where company undertakes activity 5 (high)-1 (low)	
		Mean	S.D.
Disclosure in financial statements	21	3.1	1.4
Screening of investments	45	2.7	1.4
Disclosure elsewhere in annual report	39	2.7	1.4
Environmental budgets	36	2.5	1.3
Environmental audit/review of energy	64	2.4	1.4
Screening of investment appraisal	56	2.4	1.3
Car and transport policy	66	2.1	1.2
Environmental audit/review of wastes	57	2.1	1.3
Environmental impact assessments	55	2.1	1.2
Environmental policy	56	1.9	1.1
R&D policy	50	1.9	1.1
Supplier audits	50	1.7	1.0
BS 7750	49	1.7	1.0
Life-cycle analysis	30	1.7	1.1
Activity centre appraisal	35	1.6	0.8
Sustainable development	34	1.6	1.0

aware of and responding to the environmental agenda, the majority do not. It must be of concern to the accounting profession that many accountants are not responding even in areas, such as contingent liabilities, where environmental matters have a direct impact on a true and fair view being given by the financial statements (see, for example, ICAEW, 1992).

Accountants' Involvement

Table 3 summarises the respondents' statements about the extent of accountants' involvement in the company's environmental development.

It lists a number of the activities that a company responding to the environmental agenda can be expected to be undertaking (see, for example, Elkington *et al.*, 1991).¹¹ The data in Table 3 suggests (i) that accountants are aware of corpor-

ate responses to the environmental agenda, but (ii) the level of accountants' involvement is not high. The mean response for the level of involvement for those companies in which the activity takes place only rises above a midway ranking of '3' for one activity—the disclosure in financial statements. This suggests—in data that appears to overstate the situation anyway—that accountants are not exercising anything like the level of involvement necessary for full corporate response to the environment (see, for example, Tennant, 1993).

Attitudes of Accountants to the Environmental Agenda

Table 4 reports the summarised data from the respondents' scores on the attitudinal questions together with response means for each question.

The differences between the mean responses reported in Tables 3 and 4 are remarkable. In broad terms, the data in Table 4 presents a particularly positive picture of accountants' attitudes to innovation in general and environmentally-related innovation in particular. Of especial note are the particularly high scores for the accountants' attitude to their role in innovation (question b) and the expectation of increased legislation (questions o and p). Note also that the typical 'excuse' attitudes do not score especially highly (questions a, l, r and

¹¹The figures given for 'percentage of companies undertaking activity' are broadly in line with data given in the earlier part of the questionnaire and can therefore be interpreted as having internal validity. However, the external validity is again open to question. For example, the proportion stated for 'disclosure in financial statements' is a figure much higher than current UK practice and an analysis of the financial statements of the respondent companies produced only four examples of such reporting, (see also ICAEW, 1992; Owen, 1992; and, for a summary of other surveys, Gray and Collison, 1991). However, the data is still interpretable with care.

Table 4
Respondents' Personal Views on Environmentally-related Opinion Statements

Statement of opinion	Accountants' response (5-strongly agree, 1-strongly disagree) %					1-5 Answers	
	5	4	3	2	1	Mean	S.D.
(a) the accountant should limit his/her role to the preparation of financial data	3	7	12	23	53	1.8	1.1
(b) the accountant has a duty to innovate and develop new financial information systems	65	27	5	1	1	4.6	0.7
(c) the public has a fundamental right to information about the environmental impact of companies	19	32	32	9	5	3.5	1.1
(d) accountants should contribute to the environmental sensitivity of their companies	13	27	44	12	1	3.4	0.9
(e) the professional accountancy bodies should require environmental disclosure by companies	5	15	31	20	26	2.5	1.2
(f) the government should require environmental disclosure by companies	15	27	29	15	12	3.1	1.2
(g) shareholders need environmental information	9	20	36	23	9	3.0	1.1
(h) the accountant should be involved in the preparation of environmentally related information for management	8	26	40	18	5	3.1	1.0
(i) the accountant should be involved in the preparation of environmentally related information for public disclosure	8	28	35	19	7	3.1	1.0
(j) disclosure of environmental information is a matter for legislation	23	29	20	18	8	3.4	1.3
(k) disclosure of environmental information is a subject to which I have not given much thought	17	18	31	19	12	3.1	1.3
(l) companies cannot afford the cost of disclosing environmental information	4	8	32	38	15	2.5	1.0
(m) business would be healthier if the public were informed about their environmental affairs	8	20	33	23	13	2.9	1.1
(n) environmental issues have nothing to do with accountants	1	9	27	33	28	2.2	1.0
(o) the role of the EC in environmental legislation will increase in the future	49	39	8	1	1	4.4	0.8
(p) the UK government will increase the requirements of companies in the environment domain	35	45	13	2	2	4.1	0.9
(q) environmental disclosure by companies will become general practice in the near future	9	38	36	11	4	3.4	0.9
(r) there is too much change in accounting regulation already	11	17	33	29	9	2.9	1.1
(s) the accountant's job is sufficiently demanding without worrying about environmental issues	4	9	32	31	21	2.4	1.1
(t) if environmental disclosure is inevitable, the accountant should be a primary initiator	6	13	38	24	15	2.7	1.1

(Non-responses to opinion statements were either 2 or 3%).

s) whilst the relatively negative responses given to the importance of disclosure and leadership by the accountancy profession and by the accountants themselves (questions e, m and t) introduce a distinct note of contradiction. Finally, note the seemingly strong contradiction between the fairly positive answers given to questions concerning accountants' involvement in environmental

information for management and for external disclosure (questions d, h and i) and the relatively passive responses given for involvement reported in Table 3.

This fits well with expectations indicated in the literature on attitudes. In particular, Rokeach (1976, 1985) would lead us to infer that the data represents a conflict in personal attitudes between

different types of attitudes related to (i) personally held views related to self-perception (for example, the accountant respondents see themselves as both innovators—question b—and pro-disclosure and pro-accountability); (ii) implicit, and thus unrecognised, but unshakeable personal beliefs (for example, as implied by the response concerning the accountant as initiator—question t) and (iii) attitudes towards authority (for example, the responses concerning law, the professional bodies and the health of the company—questions e, m, o and p). This conflict has the effect of producing volition different from that which might be expected from the stated-as-held attitudes and thus does not lead to the action that might reasonably have been expected. Furthermore, Fishbein and Ajzen's (see, for example, 1975) work on attitudes and behaviour seems to provide an insight to this. They link attitudes, social norms and volition control factors to intentions and behaviour.

The above results suggest that accountants have the prerequisite attitudes for them to be involved in environmental accounting, while social norms would also support forming environmental related behavioural intentions. Our focus therefore rests on volition control—some other factor might be preventing accountants acting out the behavioural outcomes of their attitudes. The most relevant factors in this context are likely to be the effect of the organisation on the accountant and the ability of accountants, themselves, to translate beliefs into behaviour.

Detailed investigation of the first factor is beyond the scope of this paper, however, studies have suggested that it is easy to overestimate the amount of operational and ethical freedom that individual actors have within organisational structures (see, for example, Katz and Kahn, 1966; Jackall, 1988; Ladd, 1970; Prodhon, 1989 and Gray, 1990b). However, it is reasonable to note that many business organisations are responding to the environmental agenda and are seeking to be 'green'. Further, professional accounting bodies have a favourable environmental stance as demonstrated earlier in the paper. It is possible to conclude, therefore, that the business or professional organisations are unlikely to significantly inhibit the accountant from translating attitudes into behaviour. This leaves the second possibility, that accountants themselves are somehow unable to respond to the environmental agenda despite their apparent willingness to do so.

We sought to explore this possibility by testing whether accountants' responses appear to bear any relation with the environmentally-related behaviour of the organisation for which they work (see, for example, Thomas, 1989) or whether accountants appear to be a relatively homogeneous body regardless of working environment who,

perhaps, reflect their professional affiliation to a greater degree than their organisational affiliation (see, for example, Harrell *et al.*, 1989).

Cross-tabulations of attitude scores and each reported characteristic of the responding financial director and the company for which s/he worked were undertaken.¹² Very few apparent relationships were discovered so the data were re-tested, first by employing a 'total attitude score'¹³ and then by categorising attitudes into four broad groups (see Figure 3). Over 600 t-tests of statistical significance were performed on the original and the adjusted data. *Not a single* combination was found to be significant at the 95% level of confidence. We infer from this a considerable degree of homogeneity in the accountant respondents. (We return to this in the discussion below.)

When the confidence level was relaxed to 90% a number of relationships began to emerge. There was a definite, though far from simple, pattern suggesting that accountants employed by companies either currently producing, or intending to produce, environmental disclosure are more likely to have more positive scores for some groups of attitudes—particularly the 'public watchdog' and 'excuses' categories of attitudes. These more positive attitudes were notably more likely if the company already produced environmental information in the annual report *but not* in the financial statements and/or if the company intended, in the near future, to make environmental disclosures in the financial statements or financial disclosures anywhere in the annual report.¹⁴ However, there did appear to be a conflict between these areas of positive attitude and the attitudes towards regulation.

On the other hand, an accountant with a lower total attitude score appeared to be more likely to be employed by a company with no environment policy (thus perhaps reinforcing Elkington's (1987) point in this regard) and also appeared to be more likely to be a member of the Institute of Chartered Accountants in Scotland (ICAS). This last point

¹²These factors included, in addition to the 'company activity' issues already discussed, company data on its age, number of employees, countries of operation, nationality of ultimate holding company and industry sector whilst the respondents gave data about themselves covering their age, gender, level of education qualification(s) and professional qualification(s).

¹³Being a summation of all attitude responses once all the scales had been adjusted to reflect equally the same direction in terms of 'positive' or 'negative' attitudes to environmental response.

¹⁴Despite the somewhat odd set of relationships encountered here, the relationship between disclosure and attitude is not necessarily odd at all. Not only does new disclosure often encourage the development of new information systems but there is widespread recognition that environmental disclosure needs the development of environmental management systems to support it and this, as one possible route, may be developed through BS 7750. Such developments could normally be expected to affect even the accountant.

Figure 3**Groups of Attitudes****1. Attitudes relating to regulatory aspects**

- (e) Professional accountancy bodies should require disclosure
- (f) Government should require disclosure
- (j) Disclosure is a matter for legislation
- (o) Role of EC legislation will increase
- (p) Role of UK government legislation will increase

2. Attitudes regarding public watchdog role

- (c) Public have fundamental right to information
- (d) Accountants should contribute to environmental sensitivity
- (g) Shareholders need environmental information
- (m) Business healthier if public informed of environmental affairs
- (n) Environmental issues have nothing to do with accountants

3. Excuses

- (a) Accountants limit role to financial data preparation
- (k) Have not given subject much thought
- (l) Companies cannot afford cost of disclosure
- (n) Nothing to do with accountants
- (r) Too much change in accounting already
- (s) Job too demanding as it is

4. Positive attitudes

- (b) Duty to innovate and develop new information systems
- (d) Should contribute to companies' environmental response
- (h) Involved in environmental information for management
- (i) Involved in environmental information for public
- (q) Disclosure will become general practice
- (t) Accountant role is primary initiator

may reflect the fact that ICAS was the only one of the mainland UK professional accountancy bodies not to have undertaken a public initiative on environmental matters at the time of the survey. This might suggest that professional body leadership *does* have some, if small, effect on member behaviour.

More definite interpretation of this seems ill-advised—not least because a 90% level of confidence is far from compelling. Furthermore, whilst there is some positive relationship between 'positive attitude scores' and the company's environmental disclosure activity at the 90% confidence level, the pattern of the results is far from clear and, indeed, strongly suggests a high degree of conflict in the accountants' attitudes—especially between their

'self-image attitudes' and their attitudes to regulation. Despite expectations to the contrary, there appears to be no grounds for drawing conclusions about the influence of general environmental activity in the organisation, the age, the awareness or (with one possible exception) the training of the accountants on their attitudinal responses as captured by the questionnaire.¹⁵ Further work will be necessary to clarify these potential relationships.

Discussion and conclusions

We believe that there are three main inferences to be drawn from the above analysis. These relate, first, to the apparent homogeneity of accountants' attitudes to the environment; second, to the gap between respondents' attitudes and their action with regard to environment activity of companies and, third, to the accountants' apparent lack of knowledge about the possibilities of environmental accounting. We discuss each of these, briefly, below and then offer some speculation as to possible explanations.

While questionnaire respondents worked in companies of different size, industry, country of incorporation and country of operation, their attitudes appear to be homogenous. Further, despite

¹⁵The educational background of the respondent in terms of university education and level of degree acquired prior to professional training does appear to have some influence, though only statistically significant at the 85% level. Those with Bachelor's degrees or PhDs scored higher than those with Master's degrees or nothing. If we posit that a substantial proportion of the Master's degrees were MBAs—and thus a different form of 'university experience' from full-time, long haul degrees—then some influence for university education background could be inferred. We did not collect data on the subject of the respondents' degrees which, especially in England and Wales, are more likely to be degrees in non-accounting subjects.

being of different ages, qualifications and professional body membership respondents' attitudes appear to be largely homogenous. Only in three areas did there appear to be *any* grounds for doubt about this homogeneity. First, accountants' attitudes did seem to be influenced (positively) if their company was active in environmental disclosure and (negatively) if their company had no environmental policy. This effect was slight and did not seem to influence the extent of the accountants' involvement. Second, there is a hint that leadership by professional accountancy bodies may have some slight association with attitudes (in our data, this related to membership of ICAS). Finally, there is a hint that pre-training university education might be associated with environmental attitudes amongst accountants. But these associations are slight and, although deserving further investigation, do not, it seems to us, detract from the essential conclusion of homogeneity.

Second, as far as we can judge, accountants are aware that environmental issues will affect their practice in the future, perceive that this impact falls within the role of the accountant and view themselves as the appropriate individuals to innovate in this area. Despite this awareness, there is an absence of environmental accounting. In terms of the theory of planned behaviour developed by Fishbein and Ajzen, this leads us to posit that, so-called volition control factors, such as situational or internal constraints, prevent accountants translating attitudes into behaviour.

Third, we confirmed what we previously suspected—there is a low level of environmental accounting activity and accountants are not highly involved in their companies' response to the environmental agenda. Further, where they are involved it is in traditional accounting areas such as disclosure. One surprise was their lack of involvement in accounting for contingent liabilities and remediation costs where field studies led us to expect that they would be. Equally puzzling, in the light of the UK professional accountancy bodies' high level exhortation and widely publicised recommendations, was the apparent lack of knowledge about possible environmental accounting options. We infer that the leadership from the professional accountancy bodies in the UK is either not getting through to members or is not yet perceived as being sufficiently important to accountants' current activities.

The apparent homogeneity of the accountants' attitudes encourages us to enquire as to what all these accountants have in common. Accountants undergo a relatively common training process that might shape them to respond in certain ways regardless of organisational setting. Granleese and Barrett (1990), for example, suggest accountants

have common personality traits that appear to differ little across organisational settings. A combination of training and personal dispositions could be powerful enough to shape the accountant and thereby affect his/her ability to innovate in the future. The findings of Granleese and Barrett (1990) encourage us to speculate that our results broadly support the proposition that the present education and training programmes inadequately prepare accountants for the environment they will face within organisations (see also Lee, 1989; Power, 1991b; Cramer *et al.*, 1991, p. 5). Power's arguments (1991a and see also Power, 1991b) effectively echo a substantial literature in which researchers have identified, or posited, that accountants as a whole, are ill-equipped to respond to new challenges. This is not to say that accountants are incapable of change, but that they are ill-equipped through their training and education, to reflect upon and respond to challenges that lie outside the existing orthodoxy of current accounting techniques.

This case has been well-argued by Sterling (1973) in his identification of the failure of accounting educators to make students and trainees aware of developments and findings in research—a view that has been more recently echoed in the UK (Lee, 1989; Power, 1991b; Gill, 1993). Booth and Cocks (1990) and Lehman (1988) take this further and posit that the emphasis on the technical and algorithmic in accounting education and training positively discourages more creative and flexible thought by accountants (see also Burchell, Clubb and Hopwood, 1985; Granleese and Barrett, 1990; Zeff, 1989; Lewis *et al.*, 1992; French *et al.*, 1992).

Clearly there is some factor at work in our data and the education, training and self-selection of accountants might plausibly be that factor. However, the situation pertaining to education and training of accountants in the UK is a complex one. Our respondents were members of six professional accountancy bodies and 46% had no university education of any sort. Unfortunately, we did not collect data on the proportion of the university-educated respondents who had accounting degrees and therefore cannot infer anything about the role of educational background. But the homogeneity of response and the gap between 'volition' and action are so striking that we cannot but wonder whether the selection and training processes of accountants are, as the literature suggests, a homogenising influence that largely overrides earlier educational influence and leaves accountants ill-equipped to respond to change. If this is a valid inference, then it clearly deserves further investigation.

Finally, it appears that the exhortation and guidance from the professional accountancy bodies are not getting through to practising members in

industry. Even on matters such as contingent environmental liabilities a significant majority of accountants are unaware of the importance and implications of the environmental agenda for their practice and for the organisations for which they work. On the broader environmental agenda, accountants seem genuinely uninformed by professional guidance and unsure how to develop environmental accounting systems. In this connection, we leave the last word to a senior finance director whose company is one of the UK's leaders in responding to the environmental agenda:

'We found it extremely difficult to see how we could put these things [environmental matters] into the accounting records ... accounting approaches encourage short-term attitudes—community investment, like environmental investment, requires a long-term attitude.' (Finance director, multi-national company).

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Management Compensation and Payback Method in Capital Budgeting: A Path Analysis

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Abstract—While discounted cash flow techniques, such as net present value, are the primary normative models of capital budgeting recommended by finance theory, our survey suggests that one of the so-called 'naive methods', the payback (PB) criterion, is widely used in practice. About 85% of the responding firms make some use of the payback criterion. Almost 50% of the responding firms indicate that the payback method plays a relatively important role in capital budgeting decisions, and the degree of the importance varies among firms. This study uses path analysis to empirically identify links between the use of payback and management compensation contracts. Controlling for uncertainty in estimating future cash flows and firm size, we find that the use of the payback method is positively related to the degree to which management compensation depends on accounting earnings. Furthermore, this study finds two indirect links between management compensation and the use of payback. The more management compensation depends on accounting earnings: the more important management perceives the earnings objective and, consequently, the greater the use of the payback method; and the less important management perceives the shareholder wealth objective and, consequently, the greater the use of the payback method. We conclude that owner-management conflict and management's self-interest behaviour induced by employment contracts are factors that promote the use of payback method.

Introduction

Many capital budgeting surveys report a wide use of the payback (PB) method as a project evaluation technique (e.g. Klammer, 1972, p. 337; Schall *et al.*, 1978, p. 281; Kim *et al.*, 1986, p. 49; Mukherjee, 1987, p. 37; Klammer *et al.*, 1991, p. 113). Although these surveys suggest a decline in the use of payback as a primary evaluation method, it remains a popular secondary method. According to the survey conducted in this study, about 85% of the responding firms use the payback method. Almost 50% of the firms indicate that the payback method plays a relatively important role in their evaluating capital budgeting proposals, and the degree of the importance varies across firms.

The continued popularity of the payback method with little theoretical justification has been a concern to accounting and finance researchers for many years. Among the factors identified for explaining the persistence of payback, the potential conflict of interests between stockholders and managers has received attention in the literature (Statman, 1982, p. 95; Statman and Sepe, 1984, p. 61; Pike, 1985, p. 47; Narayanan, 1985, p. 309). Empirical evidence is, however, not conclusive in

this regard. Incorporating some of the recent developments in management compensation literature, this study uses path analysis to empirically identify links between the use of payback and management compensation.

The remainder of the paper is organised as follows. In the following section we briefly review previous literature and develop a path model to make links between management compensation and the use of payback. In the next section we describe research methodology. Then we present the results of our empirical tests, and finally, we discuss the results of the study and draw some conclusions.

Compensation effect: an agency perspective

The agency literature suggests that management acts in its own best interests and responds to the economic incentives embodied in compensation contracts (Baiman, 1990, p. 341).¹ The literature provides extensive empirical evidence supporting

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¹Baiman (1990, p. 341) discusses and compares three branches of the agency literature, i.e., the principal-agency model, the transaction cost economics model and the Rochester model. All three branches share this fundamental assumption about management behaviour, but they emphasise different aspects of this owner-manager relationship. Instead of mathematically modelling the owner-manager interaction in the case of using payback (a principal-agency model focus), this study follows the Rochester model to investigate empirically the effect of existing management compensation contracts on the use of payback. As cited in this paper, a large body of the agency literature belongs to this branch.

this association between management behaviour and compensation contracts. For example, employment contracts affect management decisions on such issues as investments (Larcker, 1983, p. 3), merger and acquisitions (Lewellen *et al.*, 1985, p. 209; Tehranian *et al.*, 1987, p. 51), pricing (Gordon *et al.*, 1986, p. 59), equity-for-debt swaps (Defeo *et al.*, 1989, p. 201), and financial accounting choices (Zmijewski and Hagerman, 1981, p. 129; Healy, 1985, p. 85; Healy *et al.*, 1987, p. 7).

As a particular type of management behaviour, the use of payback may arise from shareholder-management conflict and the impact of compensation contracts (Statman, 1982, p. 95; Statman and Sepe, 1984, p. 61; Pike, 1985, p. 47; Narayanan, 1985, p. 309). Shareholders and managers have different preferences concerning the timing of cash flows of investment projects. Most stockholders are well diversified and primarily concerned with the net present value of the firm. Consequently, they are indifferent between two investment projects with equal net present value, regardless of which project has a shorter payback period. In contrast, professional managers have different investment positions. With their human capital heavily invested in a particular firm, managers tend to be on the safe side regarding investment projects. In addition, fast-track managers may not stay in their present positions long enough to capture all benefits derived from investment projects with long-term payback. Because of such differences in investment positions, managers tend to be more risk-averse and often prefer shorter payback. This might explain why the payback method is still popular in practice even though it has long been considered a less appropriate decision criterion than discounted cash flow methods.

Management compensation can exacerbate the conflict of interest between shareholders and managers. Since accounting earnings are directly related to cash flows generated from investment projects, tying compensation to accounting earnings may further motivate management to select faster payback projects in the hopes of increasing their near-term compensation. Therefore, with earning-based compensation contracts, management has incentive to incorporate the payback criterion into capital budgeting decisions even though it may lead to a selection of suboptimal investment projects.

This compensation-based explanation leads to an empirically testable hypothesis. Assuming that management compensation is more closely tied with accounting earnings in firms employing bonus plans, Statman and Sepe (1984, p. 61) examined whether the payback method is used more frequently by firms with only short-term bonus plans than by firms with only long-term incentive plans. Statman and Sepe's results did not support the assertion that an association between the use of

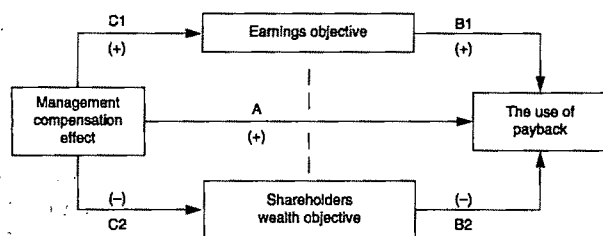
payback and earning-based compensation contracts exists. However, Statman and Sepe use only two levels of the payback variable—they classify firms as either users or non-users of payback. This dichotomous classification does not capture the relative importance of payback in different firms. The role of payback may be quite different in two firms where the method is employed. In one firm, it might play a minimal role in terms of describing or communicating a capital budgeting proposal. In another firm, it might be used as a primary selection criterion for all investment projects. It is this difference of importance that deserves explanation. In addition, 'type of incentive plan' is likely to be a noisy proxy for the underlying theoretical construct: the degree to which management compensation depends on accounting earnings. As suggested by several studies, the degree to which management compensation depends on accounting earnings varies significantly, even among firms that have short-term bonus plans (Lambert and Larcker, 1987, p. 85; Healy *et al.*, 1987, p. 7; Defeo *et al.*, 1989, p. 201). This variation should have bearing on the use of payback if the underlying theory is valid.

Pike (1985, p. 47) discussed these two problems and suggested a further investigation of the agency theory explanation. Because data for management compensation are not available in the UK, Pike addressed the issue from a different perspective. By surveying large UK manufacturing and retailing companies, Pike measured, on five-point scale, both the importance of share price maximisation as a financial objective and the importance of the payback criterion in capital budgeting. Consistent with the agency theory explanation, Pike's results show an inverse relationship between these two variables. Firms emphasising shareholders' interests placed a lower priority on the use of payback in capital budgeting.

While Pike's empirical result is encouraging, the literature is still inconclusive regarding the impact of management compensation contracts on the use of payback. In addition, the Pike study does not explain why some firms do not emphasise the shareholder wealth objective and thus place more priority on the use of payback. Measurement of the importance of the shareholder wealth objective is subjective, and, as such, is likely a source of measurement error. Lacking further corroborative evidence, the conclusion may not be as strong as desired.

In this study, we integrate these two earlier studies (Statman and Sepe, 1984, p. 61; Pike, 1985, p. 47) through a path model (see Figure 1) to re-examine the issue of owner-manager conflict and payback method used in capital budgeting. As discussed above, the Statman and Sepe study (1984, p. 61) and the Pike study (1985, p. 47) are based on the same underlying reasoning, but executed differently using unlike methodologies. If the

Figure 1
Management Compensation and Payback Method: A Hypothesised Model



theory is sound and the execution is appropriate, the empirical evidence obtained from these two methods should be corroborative. By combining these two approaches, we are, therefore, in a better position to provide more convincing evidence. In addition, we will address several methodological concerns raised about these two studies through refined variable measurement.

The model² suggests several links examined in this study. First, we hypothesise that managers are more likely to use the payback method if their compensation depends more on accounting earnings (link A). As discussed earlier, this link fits in a broad literature of agency-based managerial choices, and, as such, was examined by Statman and Sepe (1984, p. 61). Second, two financial objectives are hypothesised to have influences on the use of payback (links B1 and B2). These two links are derived from the Pike study (1985, p. 47) and included in this study to corroborate with the compensation-based approach in the Statman and Sepe study (1984, p. 61). Since capital investment is a major vehicle by which management implements corporate strategy, different financial objectives pursued through corporate strategy may lead to different emphases on the criteria used in selecting investment projects. Management is more likely to use the payback method if the earnings objective is more important and/or the shareholders wealth objective is less important.

Finally, we expect that management compensation affects the relative importance of these two financial objectives in firms' capital budgeting decisions. If management compensation depends on accounting earnings, management is likely to perceive the earnings objective (increase in current accounting earnings) as relatively more important (link C1) and the shareholder wealth objective (increase in stock price and dividend) as less im-

portant (link C2). These two expected links are consistent with the basic assumption about owner-manager conflict in the agency literature, and are the result of integrating these two earlier studies.

In addition to the agency explanation, another line of reasoning focuses on the role of payback in uncertainty. While various authors address this issue from different aspects (Weingartner, 1969, p. 594; Sundem, 1975, p. 977; Mukherjee and Henderson, 1987, p. 78; Kee and Bublitz, 1988, p. 149; and Chaney, 1989, p. 113), the underlying argument is that management can use the payback method to deal with uncertainties in estimating future cash flows. We control for this uncertainty factor in the current study to avoid confounding our findings for the agency explanation.

There is still another popular explanation in the literature. According to this argument, payback method persists in practice because it is easier for managers to understand. The method is used primarily for the purpose of communicating capital budgeting proposals and decisions (Weingartner, 1969, p. 594; Brealey and Myers, 1988, p. 259; Mukherjee and Henderson, 1987, p. 78). If this is a valid reason for the popularity of payback, it should have an across-the-board effect. After more than four decades of documented practices of using both discounted cash flow methods and payback method, one would not expect a systematic variation in understanding these techniques among managers. Therefore, we will not directly control for this factor in the current study.

Research method

The Survey

We sent questionnaires to chief financial officers of 599 publicly-held US manufacturing firms from the April 1990 Disclosure CD-ROM Database. These firms satisfied the following two criteria: (1) All firms were manufacturing firms as defined by their primary SIC code (20-39); and (2) Proxy statements were available for more than 10 years. Out of these firms, 14 responded with non-participation leaving 585 firms as potential respondents.

²We propose this model for the purpose of studying empirically the effect of management compensation contracts on the use of payback by integrating two earlier studies. We do not claim it as a complete model for the use of payback, nor do we hypothesise the compensation effect as the sole factor responsible for the persistence of the payback method.

Table 1
Anova on the Use of Payback Method

Source	SS	DF	MS	F	P-value
Investment categories	1.185	2	0.593	2.108	0.122
Sample firms	418.667	107	3.913	13.920	0.000
Error	60.148	214	0.281		
Total	480.000	323			

115 firms responded to the survey, with 108 responses usable. This resulted in a response rate of 18%.³

To assess potential non-response biases, a random sample of 108 firms was selected from the potential respondents. These randomly selected firms were then compared to the 108 responding firms on several characteristics. First, we examined industry distributions between these two samples. The responding firms encompassed all 20 manufacturing industries. A chi-square test of homogeneity suggests that the industry distribution of the responding firms does not significantly differ from that of a randomly selected sample (p -value = 0.7817). Thus, there is no industry clustering in the sample of responding companies.

Second, we compared the two samples using two measures of firm size. As measured by year-end total assets (1990) or five-year capital expenditures (1986–1990), the mean size of the responding firms is significantly larger than that of the randomly selected firms according to t -test (p -value = 0.0226 for the measure of total assets; p -value = 0.0062 for the measure of capital expenditures). These results suggest that the current sample is biased toward larger firms.

Finally, we conducted two-sample t -tests on profitability (measured by five-year return on assets from 1986 to 1990) and capital structure (measured by ratio of long-term debt to invested capital at the end of 1990). The results of comparisons indicate that the current sample is not different from a randomly selected sample in profitability (p -value = 0.9242) or capital structure (p -value = 0.3931). From all these comparisons between the current sample and a randomly selected sample, it seems that non-response biases are not likely to be a threat to the conclusion of the study based on the current sample. However, our findings are more likely generalisable to larger firms than to smaller ones.

We also collected demographic information on the persons who actually completed the questionnaire. Half of the respondents were CFOs, treasurers or corporate controllers; and the remainder

were either assistant treasurers and/or controllers or managers of capital budgeting departments. The majority of them had graduate education and had been in their current positions for more than three years. According to previous surveys (e.g. Mukherjee and Henderson, 1987, p. 78), people with accounting and finance backgrounds are more involved in developing and selecting capital budgeting proposals submitted from lower levels. Therefore, we expect people participating in the survey to be well informed regarding capital budgeting techniques used in their firms.

Variable Measurement

(1) *The use of payback method.* Respondents indicated the degree to which the payback method is used in their firms on a five-point Likert-type scale with 5 indicating heavy reliance on and 1 indicating no use of payback. The question was repeated three times for three categories of investment projects: equipment replacement, expansion of existing products and expansion into new products.⁴

We expect these three categories of investment projects to characterise the degree of difficulty which firms encounter in estimating future cash flows of investment projects. The easiest to handle is equipment replacement since there is enough history about the old equipment on which one can rely in estimating future cash flows for the new equipment. On the other hand, the most difficult to forecast are the results of investing in new products. There is little knowledge about the new investment to assist in cash flow forecasting. Therefore, measuring the use of payback separately for these three categories of investments serves to control for the potential impact of uncertainty on payback's use. If management uses the payback method to cope with uncertainty surrounding an investment

³Although the response rate is not as high as we desire, it is not uncommon in the literature for this type of capital budgeting survey (e.g. Klammer *et al.*, 1991, p. 113).

⁴In the survey by Klammer *et al.* (1991, p. 113), their classifications of investment projects are more detailed. For example, in addition to these three categories, they include such types as foreign operations, abandonment, general and administrative, social expenditure, and high technology. We feel that these three categories adopted in this current study are broad enough to cover most of the capital expenditures a firm would normally incur. Our position is confirmed by the fact that respondents are able to divide up their annual capital expenditures in percentage among these three investment categories.

Table 2
Descriptive Statistics and Correlations for the Use of Payback in Capital Budgeting Decisions

<i>Investment categories</i>	<i>Mean</i>	<i>Standard deviation</i>	<i>Sample size</i>	<i>Median</i>	<i>Minimum</i>	<i>Maximum</i>
Replacement (PB_R)	3.148	1.244	108	3.000	1.000	5.000
Expansion—existing product (PB_EP)	3.296	1.162	108	3.500	1.000	5.000
Expansion—new product (PB_NP)	3.222	1.256	108	3.000	1.000	5.000
Weighted average (PB)	3.215	1.150	108	3.175	1.000	5.000

Correlation Matrix				
	<i>PB_R</i>	<i>PB_EP</i>	<i>PB_NP</i>	<i>PB</i>
PB_R	1			
PB_EP	0.7967	1		
PB_NP	0.7685	0.8768	1	
PB	0.9357	0.9272	0.9034	1

project, one would expect an increasing use of payback in these three categories of investments in the following order: equipment replacement, expansion of existing products and expansion into new products. If this is the case, we should test the agency explanation within each investment category to control for the effect of uncertainty.

To examine the effect of these three investment categories on the use of payback in our sample firms, we ran a two-way ANOVA with investment categories as treatments and sample firms as controlling blocks (Neter *et al.*, 1985, pp. 948–950, repeated measure designs). As reported in Table 1, the treatment effect is not significant with the p-value equal to 0.122, suggesting that our sample firms do not use the payback method differently in different investment projects. Instead, the role of payback varies significantly among our sample firms as evidenced by the block effect (p-value equal to 0.000). This block effect indicates a need for investigating links between the use of payback and some firm characteristics that may cause this variation. As revealed by this study, one of these characteristics is the degree to which management compensation depends on accounting earnings.

Since the investment categories do not affect the use of payback, we constructed a weighted average index for the use of payback in each firm, using the percentage of capital expenditures in each investment category to total capital expenditures as weights (provided by the respondents). Table 2 shows descriptive statistics and simple correlations for the PB index and the components of the index. It is evident that there are strong correlations among the index and all three items used to

construct the index, suggesting that these multiple items are actually measuring the same construct. A 0.929 value for Cronbach's alpha further supports using the index as the measure for the use of payback in each firm.⁵

Although our research design does not directly control for the factor of management understanding, we did examine the effect of firm size on the use of payback. In the literature, large firms have been hypothesized to use sophisticated capital budgeting techniques more than small firms because of human resources available in large firms (e.g. Klammer, 1972, p. 337; Schall and Sundem, 1981, p. 7; Kim, 1982, p. 185; and Klammer *et al.*, 1991, p. 113). This suggests an indirect relationship to the argument about management understanding. If larger firms employ more sophisticated capital budgeting staff, one would expect less emphasis on the use of payback. However, we did not find any significant relationship between firm size and the use of payback in our sample ($r = 0.0393$, firm size measured by total assets and $r = -0.1110$, firm size measured by capital expenditures).

⁵Two points deserve further noting about the dependent variable. First, to make sure that the uncertainty factor is properly controlled, we included firms' stock Beta as another surrogate for uncertainty in the final analysis. Consistent with the results obtained using the investment category as a surrogate, the Beta variable does not have any significant effect on the use of payback. Second, although we present our empirical results using a weighted average measure for the use of payback, the empirical relationships hold for all three investment categories when we run the analyses separately within each investment category. This is not a surprising result given the high correlations among the index and the three separate measures.

Table 3
Descriptive Statistics for the Importance of Financial Objectives Pursued in Capital Budgeting

<i>Financial objectives</i>	<i>Mean</i>	<i>Standard deviation</i>	<i>Sample size</i>	<i>Median</i>	<i>Minimum</i>	<i>Maximum</i>
Current earnings	3.250	1.024	108	3.000	1.000	5.000
Shareholder wealth	3.472	1.164	108	3.000	1.000	5.000

(2) *Earnings and shareholders' wealth objectives.* We asked respondents to indicate the relative importance of earnings objective (increase in current earnings) and shareholder wealth objective (increase in stock price and dividends) in their capital budgeting decisions on a five-point Likert scale. We modelled the questions after the Pike study (1985, p. 47); however, Pike included only the shareholder wealth objective in his final analysis. Earlier, we raised a concern about the subjective nature and potential errors involved in measuring the shareholder wealth objective. Although we did not improve the measurement directly, our research design contains internal checks on the problem in terms of corroborating empirical evidence.

First, the earnings objective and the shareholder wealth objective are expected to have an opposite effect on the use of payback. By including the earnings objective in our analysis, we are able to examine whether the effects of these two financial objectives are consistent. An empirical consistency between these two variables signals a lower possibility of measurement errors. Second, our theoretical model suggests multiple links between the use of payback, the financial objectives, and the management compensation. If confirmed empirically, these links serve a further check regarding both theory and measurement. Table 3 shows descriptive statistics for these two variables.

The descriptive statistics show a slightly greater emphasis on the shareholder wealth objective, but the difference is not statistically significant. These two financial objectives are negatively related, but again the correlation is insignificant ($r = -0.0294$). These results point out that the two financial objectives are not mutually exclusive and they both play specific roles in a firm's capital budgeting decisions.

(3) *Compensation effect.* To examine the effect of compensation-earnings dependence on management behaviour, we must measure the relationship between management compensation and accounting earnings. While it is conceivable that this compensation-earning relation varies among firms, researchers generally did not attempt to quantify the degree of this relation in early studies. Instead, an emphasis was placed on the existence of bonus plans (Watts and Zimmerman, 1986, pp. 107–210). It was frequently assumed that

management compensation was directly related to accounting earnings under a bonus plan and that the existence of bonus plans had a significant impact on management behaviour. The Statman and Sepe study (1984, p. 61) discussed earlier followed this line of reasoning.

There are, however, a number of limitations associated with using the existence of a bonus plan as a proxy for the dependence of management compensation on accounting earnings. First, most firms today include bonus plans as part of their executive compensation contracts (Defeo *et al.*, 1989, p. 201). Second, the extent to which bonuses depend on accounting earnings may vary across firms. The magnitude of this compensation-earning dependence should be more powerful in explaining the cross-sectional variation of managerial choices than a mere existence of bonus plans. Finally, in addition to annual bonuses, other components of management compensation such as salaries may be directly or indirectly related to accounting earnings (Antle and Smith, 1985, p. 296).

Because of these problems, Antle and Smith (1985, p. 296) suggest a regression approach to estimate the relation between management compensation and accounting earnings. This empirically established association can then be used to assess the impact of management compensation on management behaviour (e.g., Healy *et al.*, 1987, p. 7; Defeo *et al.*, 1989, p. 201).

To estimate the dependence of management compensation on accounting earnings, we follow Healy *et al.* (1987, p. 7) in constructing a compensation model for each firm in our sample.⁶

$$COMP_t = \sum_{i=1}^n \alpha_i D_{it} + \beta EARN_t + e_t \quad (1)$$

where:

$COMP_t$ = cash compensation paid to chief executive officer (CEO) during year t in 1990 constant dollars,

$EARN_t$ = accounting earnings for the firm during year t in 1990 constant dollars,

$D_{it} = 1$ if individual i was CEO of the firm during year t , 0 otherwise,

⁶Healy *et al.* (1987, p. 7) estimate the model in the logarithmic form. However, as noted in both Healy *et al.* and Defeo *et al.* (1989, p. 201), the results of compensation studies are usually insensitive to the logarithmic transformation.

Table 4
Descriptive Statistics from the Firm-specific Regressions of Cash Compensation on Accounting Earnings¹

Panel A. With earnings measured as income before extraordinary items

	Standard				
	Mean	deviation	Median	Minimum	Maximum
\hat{b} (coefficient)	5.426	7.925	2.159	0	37.600
t-statistic	2.968	3.606	2.095	0	27.000
R ²	0.548	0.265	0.545	0.015	0.978
Adjusted R ²	0.448	0.314	0.456	-0.202	0.973

Panel B. With earnings measured as net income

	Standard				
	Mean	deviation	Median	Minimum	Maximum
\hat{b} (coefficient)	4.810	7.168	1.700	0	37.500
t-statistic	2.595	2.714	2.035	0	16.270
R ²	0.530	0.266	0.555	0.016	0.978
Adjusted R ²	0.429	0.312	0.438	-0.202	0.973

¹In the regression, compensation is expressed in 1990 dollars and earnings are in thousands of 1990 dollars. The regressions were estimated using data from 1979 to 1990.

n = number of CEOs of the firm during the sample period,

β = firm-specific parameter representing the association between management compensation and accounting earnings,

a_i = CEO-specific parameters representing adjustments for individual CEO's differences.

As indicated in the model, we used cash compensation obtained from proxy statements as a surrogate for management compensation. Accounting earnings are measured using income before extraordinary items and net income per the COMPUSTAT tape.⁷ We converted management compensation and accounting earnings to 1990 dollars using the Consumer Price Index to avoid the effect of price level changes.

Two issues are worth noting about our compensation model. First, as in Healy *et al.* (1987, p. 7), the intercept term, a_i , is allowed to vary across CEOs included during the estimation period. This parameter represents the fixed component of CEOs' compensation adjusted for individual differences such as ability and backgrounds. The β coefficient is modelled as a firm-specific (instead of individual CEO-specific) parameter describing the relationship between management compensation and accounting earnings in the firm.

Second, although management compensation generally includes more than cash compensation, we use the cash component as a surrogate. A

defence for the validity of using this surrogate is that cash compensation typically accounts for a significant portion of total compensation and is well recognised in the literature as a useful surrogate on this ground (Simon, 1983; Abdel-khalik, 1985, p. 427; Healy *et al.*, 1987, p. 7; and Defeo *et al.*, 1989, p. 201). More importantly, for the purpose of this study, we are interested in identifying an empirical relationship between management compensation and accounting earnings in each firm. Conceivably, cash compensation is more directly related to accounting earnings than would other components of total compensation such as stock option. There is even some empirical evidence that the slope coefficient from regressing cash compensation on firm performance is not significantly different from the slope coefficient from regressing total compensation on performance.⁸ This suggests that using cash compensation to estimate compensation-earning relation may have less noises than using total compensation. Thus, we conclude that the compensation model should serve the purpose of this study.⁹

Table 4 contains descriptive statistics from the firm-specific regressions of CEOs' cash compen-

⁸A logical interpretation for this type of empirical evidence is that non-cash components of total compensation do not vary directly in relation to current accounting earnings. See Defeo *et al.* (1989, p. 207) for a further discussion on this issue.

⁹Arguably, excluding some important components of management compensation, such as stock option, brings about a limitation to the scope of our study. Based on the same theory, one can argue that management would have less incentives to use the payback method if their compensation contains more stock-based components. Including such a variable may provide additional explanation to the cross-sectional variation of using payback besides the effect of the compensation-earning dependence investigated in this study.

⁷Since some firms exclude extraordinary items in determining executives' compensation, the compensation model is computed using two measures of earnings. As discussed later, our empirical results are not sensitive to these two measures.

sation on accounting earnings. The regressions were based on 12-year time-series data from 1979 to 1990 in each of the 108 firms included in the final analysis. The overall performance of the model is reasonable in explaining the relation between CEOs' cash compensation and accounting earnings according to the average measures of R^2 , adjusted R^2 and t-statistic. Using income before extraordinary items as the measure of accounting earnings, we observed significant β coefficients (at p-value < 0.05) for 56% of the firms. Using net income, the percentage is 52%. On average, more than 50% of the variations in management cash compensation can be explained by the model. These empirical results are generally compatible with those reported in both Healy *et al.* (1987, p. 7) and Defeo *et al.* (1989, p. 201) where the same empirical approach was used.

To formally test the usefulness of β coefficients generated by the compensation model, we conducted a collective Z-test to examine the null hypothesis that the β coefficient is not significantly different from zero (Healy *et al.*, 1987, p. 7). The null hypothesis was rejected under both measures of accounting earnings.¹⁰

Statistical Model—Path Analysis

As discussed previously, the hypothesised relationships are formulated as a path model where management compensation affects the use of payback as well as the relative importance of two financial objectives. In turn these financial objectives influence the use of payback. We examined these links via path analysis.¹¹ Path coefficients are estimated by standardising the β coefficients obtained through a series of ordinary regressions (Duncan, 1966, p. 1; Johnson and Wichern, 1988,

p. 329). The model proposed in Figure 1 consists of a system of three equations.¹²

$$PB_i = a_1 + \beta_{11}CE_i + \beta_{12}EO_i + \beta_{13}SO_i + e_{1i} \quad (2)$$

$$EO_i = a_2 + \beta_{21}CE_i + e_{2i} \quad (3)$$

$$SO_i = a_3 + \beta_{31}CE_i + e_{3i} \quad (4)$$

where:

PB_i = The use of PB in capital budgeting by firm i , (i.e. the weighted PB index),

CE_i = The dependence of management compensation on accounting earnings in firm i , (i.e. the slope coefficient from regressing compensation on earnings),

EO_i = The importance to firm i of the earnings objective in capital budgeting decisions,

SO_i = The importance to firm i of shareholder wealth objective in capital budgeting decisions.

As Duncan (1966, p. 1) suggests, we conducted t-tests¹³ to determine whether insignificant variables should be eliminated from the system. The significant level of less than 0.05 is used as the cut-off. The remaining β coefficients are then standardised into path coefficients.

Results

The compensation effect variable ($CE1$) is the dependence of management compensation on accounting earnings based on income before extraordinary items, Table 5, Panel A. The compensation effect variable ($CE2$) measures the relationship based on net income, Table 5, Panel B. These two measures are highly correlated ($r = 0.9$).

To assess the potential effects of violation of model assumptions, we checked variance inflation factor (VIF) for multicollinearity and conducted White-test for heteroscedasticity.¹⁴ Since no violations are present, we conclude that neither multicollinearity nor heteroscedasticity is likely to affect our statistical inferences.

¹⁰The Z-statistic is calculated as follows:

$$Z = \frac{1}{\sqrt{N}} \sum_{j=1}^N \frac{t_j}{\sqrt{K_j/(K_j - 2)}}$$

where:

t_j = t-statistic for firm j associated with the β parameter,
 K_j = degrees of freedom in regression for firm j ,
 N = number of firms in the sample.

It is a standard normal variate under the null hypothesis that the β parameter is not significantly different from zero. The sample Z-statistic is 27.18 when income before extraordinary items is used and 23.52 when net income is used. Both statistics are larger than the critical value (1.96 at the level of 0.05) from the standard normal distribution, leading to the rejection of the null hypothesis.

¹¹Although path analysis adds no statistical value to conventional regression analysis, it is invaluable as a pattern of interpretation in making explicit the rationale for a set of regression equations (direct effects) and providing a general procedure for calculating the indirect effects of an independent variable on a dependent variable in a multi-stage path model (Duncan, 1966, p. 1). This use of path analysis is popular in behavioural accounting research. (See Aranya *et al.*, 1982, p. 201 and Gregson, 1990, p. 32.)

¹²The control variables for uncertainty and size are not included here because of their insignificant impact on the use of payback, as examined earlier. However, including these two factors in the analysis does not cause any substantial changes in our empirical results.

¹³All Student t-tests conducted in this study are one-sided tests.

¹⁴We calculated the variance inflation factor (VIF) for each of the three explanatory variables in the first regression model. The maximum VIF is slightly over 1, indicating no serious multicollinearity problems (Neter *et al.*, 1985, p. 392). To check for heteroscedasticity, we conducted the White-test on all three regression models, following the procedures by Greene (1990, p. 420) and Pindyck and Rubinfeld (1991, p. 136). All of the White-test statistics are significantly smaller than their respective critical values from the chi-square distribution at the level of 5%. Thus, the null hypothesis of homoscedasticity is not rejected for any of the three regression models.

Table 5
Regression and Path Analysis Results

Panel A. Compensation effect estimated based on income before extraordinary items						
<i>Dependent variable</i>	<i>Explanatory variable</i>	<i>Regression coefficient</i>	<i>t-Statistic</i>	<i>Overall F</i>	<i>R²</i>	<i>Path Coefficient</i>
PB	CE1	0.0345	2.71 (0.00) ¹	9.00 (0.00)	0.2061	0.2443
	EO	0.2909	2.95 (0.00)			0.2590
	SO	−0.2010	−2.27 (0.01)			−0.2034
	Constant	2.7748	5.93 (0.00)			
EO	CE1	0.0133	1.07 (0.15)	1.14 (0.33)	0.0106	N.S. ²
	Constant	3.1779	26.59 (0.00)			
SO	CE1	−0.0323	−2.32 (0.01)	5.40 (0.01)	0.0485	−0.2201
	Constant	3.6475	27.39 (0.00)			
Panel B. Compensation effect estimated based on net income						
PB	CE2	0.0394	2.68 (0.00)	8.93 (0.00)	0.2048	0.2457
	EO	0.2514	2.48 (0.01)			0.2238
	SO	−0.2103	−2.39 (0.01)			−0.2129
	Constant	2.9383	6.41 (0.00)			
EO	CE2	0.0349	2.60 (0.01)	6.74 (0.00)	0.0579	0.2444
	Constant	3.0822	26.63 (0.00)			
SO	CE2	−0.0300	−1.94 (0.03)	3.75 (0.03)	0.0342	−0.1844
	Constant	3.6164	27.13 (0.00)			

¹Numbers in parenthesis are p-values.

²This path is not significant.

The first regression describes the use of payback by three explanatory variables, i.e., compensation effect (CE1 or CE2), earnings objective (EO), and shareholder wealth objective (SO). The model is highly significant as indicated by the overall F statistics and p-values (F = 9.00 and P = 0.00 if CE1 is used and F = 8.93 and P = 0.00 if CE2 is used). In both panels, all three explanatory variables are significant in explaining the use of payback as shown by the t-statistics and p-values. As expected through the path model in Figure 1, the more management compensation depends on accounting earnings, the greater the use of payback (Link A); the more important management perceives the earnings objective in capital budgeting, the greater the use of payback (Link B1); and the less important management perceives the share-

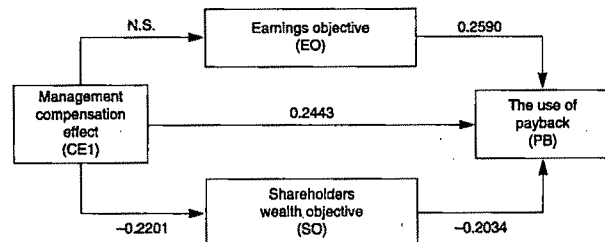
holder wealth objective, the greater the use of payback (Link B2).

The significant β coefficients were standardised into path coefficients. These path coefficients suggest that all three explanatory variables have similar direct effects on the use of payback in terms of the magnitude of the coefficients. For example, the compensation effect (measured as CE1) and the earnings objective both positively influence the use of payback with respective path coefficients of 0.24 and 0.26, while the shareholder wealth objective negatively influences the use of payback with the path coefficient of -0.20.

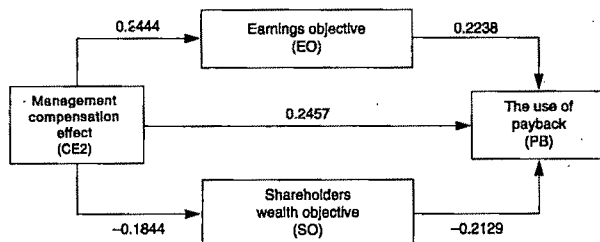
The second regression explains the variation in the importance of earnings objective by management compensation effect (Link C1). The results depend on which measure of compensation effect

Figure 2
Management Compensation and Payback Method: Empirical Results

A. Compensation effect estimated based on income before extraordinary items



B. Compensation effect estimated based on net income



we use. The importance of the earnings objective is significantly related to the compensation effect only when net income is used in the measurement of compensation effect as displayed in Panel B ($F = 6.736$, $p = 0.00$ and $t = 2.60$, $p = 0.01$). The positive and significant path coefficient (0.24) indicates that the more sensitive management compensation is to accounting earnings (measured as net income), the more important management perceives the earnings objective in capital budgeting decisions. Thus, Link C1 is verified using the compensation effect variable based on net income (CE2).

However, it was perplexing to observe the inconsistent result for CE1 in Panel A ($F = 1.14$, $p = 0.33$ and $t = 1.07$, $p = 0.15$). In order to identify possible reasons, we inspected a scatter plot for the relationship between earnings objective and compensation effect (CE1). Three outliers were very visible in the scatter plot. For all these three firms, there is a substantial difference between the two measures of compensation effect (CE1 and CE2). After deleting these three data points, we are

able to obtain almost identical results for Link C1 using the second regression model. Therefore, we conclude that outliers cause the inconsistent results regarding this link.

The third regression describes the relationship between the importance of the shareholder wealth objective and the compensation effect (Link C2). As expected, the more sensitive management compensation is to accounting earnings, the less important the shareholder wealth objective is in capital budgeting decisions. The significant results are consistent in both panels according to F statistics, t-statistics and p-values. After standardisation, the resulting significant path coefficients are -0.22 (CE1) or -0.18 (CE2).

In summary, we are able to confirm empirically all the links proposed in the path model. Figure 2 places these results in perspective through an empirical model parallel to the conceptual model in Figure 1.

Finally, we used the path coefficients to calculate both direct and indirect effects of the compensation-earning dependence on the use of payback.

Table 6
Direct and Indirect Effects of Management Compensation on the Payback Criterion

	Direct	Indirect	Total
CE1	0.2443	$0.0448 = (-0.2201) \times (-0.2034)$	0.2891
CE2	0.2457	$0.0964 = [(0.2444 \times 0.2238) + (-0.1844) \times (-0.2129)]$	0.3421

The results appear in Table 6. The results of total effect clearly indicate that the dependence of management compensation on accounting earnings has the strongest influence on the use of payback because of the indirect effects through the two financial objectives pursued in capital budgeting. For example, when the variable is measured as CE2, it has a strong total effect (0.34) on the use of payback as compared with the effects of the earnings objective (0.22) or the shareholder wealth objective (-0.21).

Conclusions

This study provides supporting evidence to the agency-based explanation for the use of payback in capital budgeting. Specifically, we find that the use of the payback method is an increasing function of the degree to which management compensation depends on accounting earnings. Furthermore, there is an indirect effect on the use of the payback method for this compensation effect through two financial objectives pursued in capital budgeting. The more management compensation depends on accounting earnings: (1) the more important management perceives the earnings objective in capital budgeting, and the greater the use of payback method; and (2) the less important management perceives the shareholder wealth objective in capital budgeting, and the greater the use of payback method. Consequently, we conclude that owner-manager conflict and management's self-interest behaviour induced by employment contracts are factors that promote the use of payback method.

Our study is based on a coherent combination of two different approaches in the literature to address the issue of owner-manager conflict and the use of payback method (Statman and Sepe, 1984, p. 61; and Pike, 1985, p. 47). Until this study, there was no consistent evidence for this issue in the capital budgeting literature. This integration allows us to produce corroborating evidence regarding the impact of management compensation on the use of payback. Additionally, we control for the potential effect on the use of payback of uncertainty in estimating future cash flows and firm size. Therefore, this study offers more consistent and convincing empirical evidence.

As stated earlier, accounting related empirical agency research has provided various supporting evidence about the impact of management compensation on managerial behaviour (Baiman, 1990, p. 341). In this regard, our results are consistent with, and add new evidence to this important literature. To better understand implications of this study as one piece in this growing literature, two related issues deserve discussion. First, a key assumption of this study is that payback is an inferior method, the use of which will result in a

selection of suboptimal investment projects. This is analytically verifiable under the condition of cash flow certainty as illustrated by traditional capital budgeting theory in finance (e.g., Brealey and Myers, 1988, pp. 74–75). However, the capital budgeting literature does not have compelling evidence regarding this assumption, especially in actual settings with considerable cash flow uncertainty. This is the reason why we controlled for the impact of uncertainty in this study through analysing three investment categories and stock Beta. As reported, we did not observe any significant effects within our sample.

Second, if earning-based compensation contracts motivate management to use the payback method to increase their near-term compensation, one would expect that this opportunistic behaviour is observable to shareholders sooner or later. A logical question is why shareholders do not rewrite compensation contracts to minimise the agency problem. This is a valid concern applicable to this study as well as to most other studies in the empirical-based agency literature.¹⁵ As implicitly or explicitly assumed in most studies in the literature, we take firms' compensation contracts as given, and then, attempt to study the effect of these existing contracts on management behaviour.

Therefore, our study is limited in terms of scope. We focus on empirically documenting links between compensation-earning dependence and the use of payback. Although our findings are consistent with the agency literature, management compensation is only one of the many factors responsible for the popularity of payback and our study leaves unaddressed a large portion of the variations in the use of payback among our sample firms. Future research can improve on this by examining other possible explanatory factors in the determination of the extent to which the payback method is used in capital budgeting practice.

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¹⁵See Baiman (1990, p. 341) for an excellent discussion on this limitation in the empirical-based agency research.

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A UK Empirical Test of the Larson-Gonedes Exchange Ratio Model

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Abstract—This paper adopts the Larson-Gonedes merger exchange ratio determination model to investigate the bargaining area in UK takeovers involving share-for-share exchanges. The model focuses on price-earnings ratios rather than share price returns and so is more consistent with practical valuation methods than other approaches. The basic model is extended for the UK to consider both cash alternative offers and mixed offers involving cash and equity consideration. The model is tested on a sample of 95 UK takeovers between 1984 and 1988 using consecutively unadjusted, FT All Share Index adjusted and beta adjusted price bases. The analysis adopts the conventional chi-square test used by Conn and Nielsen but, in addition, a new test is developed based on a Generalised Likelihood Ratio. We find that on an unadjusted price basis there is greater support for the Larson-Gonedes model in the UK than Conn and Nielsen found for the US. However, our extended model based on adjusted prices provides more cautious support. In addition, we conduct a sensitivity analysis to test the robustness of the results and provide further evidence on the wealth effects on acquiring and acquired company shareholders.

Introduction

One of the most common reasons why negotiations between merger candidates break down is because the price to be paid by the potential acquirer is too high (Weston and Brigham, 1982, p. 613). In theory, investment decisions should be determined by the effects on market values and it is widely accepted in the literature that takeovers are a special case of the investment decision. Therefore, in principle the value of a target company can be assessed using the standard discounted cash flow approach (see, for example, Weston, Chung and Hoag, 1990, chapter 6). However, 'it has been found that few firms actually use the discounted cash flow approach when it comes to valuing a company for takeover or merger purposes' (Samuels, Wilkes and Brayshaw, 1990, p. 386).

In practice, professional analysts and management seem to prefer an approach using price-earnings (PE) ratios, either as a method of valuation on its own or as a method to be used in conjunction with the discounted cash flow technique (Weston, Chung and Hoag, 1990, p. 651). In the UK, it has been found that considerable emphasis is placed on estimating earnings and projecting price earnings multiples to establish firm value (Lee and Tweedie, 1981; Arnold and Moizer, 1984; Day, 1986; Keane, 1992). For example, Lee and Tweedie (1981) found, in their survey of

institutional investors, that the most valuable item of information in corporate annual reports was earnings per share. Arnold and Moizer (1984, p. 200) reported that 'most (analysts) use the estimated PE ratio to estimate the company's market value'. Furthermore, the London Stock Exchange (1983), in its submission to the Accounting Standards Committee, stated that 'earnings per share, certainly in the case of listed companies, must be regarded as one of the most important investment criteria in the measurement of performance'. These findings are not unique to the UK. Weston and Brigham (1982, p. 614) report that in the US 'company directors will often state, "I do not know how the merger will affect the market price of the shares of my company, because so many forces influencing market price are at work. But the effect on earnings per share can be seen directly."'

In the light of what appears to happen in practice in the valuation of companies in the UK and US, this paper considers a model of negotiation advocated by Larson and Gonedes (LG) (1969). It is the only formal model of bargaining that uses PE ratios to determine the boundaries for negotiating a business combination. The LG model uses PE ratios to determine the maximum and minimum exchange ratios that will leave the wealth position of participants to a business combination unchanged. As such, the model may assist prospective merger participants in negotiation and reduce the number of abortive mergers that occur because of lack of agreement over price. The focus here is on accounting earnings rather than on changes in shareholders' wealth. The importance of accounting earnings in

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a takeover context has been of concern to practitioners for a considerable period of time. Such concerns have been recognised in FRS 3, *Reporting Financial Performance*, issued by the Accounting Standards Board in October 1992, which makes a distinction between the aggregate results of continuing operations, acquisitions and discontinued operations. From a behavioural viewpoint, the model is interesting in that it concentrates on boundary conditions necessary for a merger to go ahead. It can therefore be described as a shareholder satisficing model rather than a shareholder wealth maximisation model.

The LG model has been tested by Conn and Nielsen (1977) on a sample of 131 US mergers for the period 1960 to 1969. Whilst the LG paper still receives attention in some of the finance literature (see, for example, Clark, 1985 and Copeland and Weston, 1988) the model has not yet been tested in the UK. This paper aims to fill this gap in the literature by reporting on a test of the LG model on a sample of UK takeovers that were completed between January 1984 and December 1988. However, the LG model is based on share-for-share exchange and is not generalisable to the UK because a cash alternative to the share-for-share offer is a common occurrence. As a consequence, we modify the basic model to accommodate takeovers where there is such an alternative and also those where there is a mixed offer involving both cash and shares.

The main hypothesis to be tested is whether ex ante wealth expectations of the merger participants are realised in the period around the consummation of the merger. If this were to be the case, then the results would be consistent with the LG model of exchange ratio determination and investors' expectations. We recognise that ex post testing of the distribution of merger premia has typically been undertaken using a market model or capital asset pricing model framework.¹ As a consequence, a secondary objective of the paper is to reconcile the results of testing the LG model, which is based on PE ratios, with results from event studies, which are based on a model of abnormal returns on shares. This reconciliation is achieved by extending the test of the model to take account of market risk.

The LG model, in its basic form (i.e. unadjusted for market risk), has the advantage of focusing on the effect of the merger transaction on shareholders' perceptions of the likely outcome. The evidence on valuation practices of professional analysts and managers outlined above might be

taken as implying a concern with the impact of any merger on accounting earnings and PE ratios. If this is the case then we are testing a model that may assist negotiators in the determination of the parameters of the bargaining area using ex ante PE ratios.

The paper is divided into three sections. The next section discusses the basic LG model and explains how this is extended to cope with both cash alternatives and mixed offers. The second section deals with methodology and the third section discusses the results and reconciles them with those established by event studies.

The Larson-Gonedes Exchange Ratio Model and extensions

The Basic Model

The LG model is based on exchange ratios in which the pre-merger combination of the market values of shares are compared with the post-merger wealth position. The model concentrates on the immediate impact on PE ratios that result from the merger. The post-merger PE ratio is a weighted average of the participants' pre-merger PE ratios provided the post-merger growth rates and risk are also weighted averages. Where there is an expectation of future benefits from the merger resulting in enhanced long-run earnings growth, the combination's PE ratio should be higher than a weighted average (LG, 1969, p. 722).

The model assumes that the object of the merger is to increase shareholders' wealth.² Thus, shareholders will not agree to a combination unless, at the very least, their wealth position is maintained. Another assumption of the model is that post-merger PE ratios reflect the risk-return characteristics of the merger participants (i.e. share prices reflect the risk and anticipated returns on investment in the merging firms). In addition, the model assumes that earnings synergy will not arise in the first year of the merger. As LG (1969, p. 723) note in discussing the reasonableness of this assumption, 'even those who proclaim the existence of "synergism" will admit that synergistic effects are not immediate', a point also made by Clark (1985, p. 96).³

²Note that this effectively ignores managerial motives for mergers. There is evidence (Morck, Shleifer and Vishny, 1990; Firth, 1991) that suggests the personal objectives of managers may be a factor in driving bad acquisitions.

³However, as an anonymous referee has pointed out, management may be more likely to use the LG model if they believe that earnings will change following a merger. In so far as this anticipated change (both long and short run) should be reflected in the prospective post-merger PE ratio used in the model and provided that the earnings forecasts and prospective PE ratios are determined on a compatible basis, the results obtained from the empirical research below should be unaffected (see also footnote 5).

¹Firth (1976); Franks, Broyles and Hecht (1977); Firth (1980); Franks and Harris (1989); Asquith, Brunner and Mullins (1983); Malatesta (1983); Limmack (1991). For a review of some of this work see Krinsky, Rotenberg and Thornton (1988).

The pre-merger values of a share in the acquiring company, P_A , and of a share in the victim company (acquiree), P_V , are as follows:

$$P_A = PE_A \cdot EPS_A \quad (1)$$

$$P_V = PE_V \cdot EPS_V \quad (2)$$

The expected post merger value of a share in the combined firm, P_{AV} , is defined by

$$P_{AV} = PE_{AV} \cdot (E_A + E_V) / (S_A + S_V[ER]) \quad (3)$$

where:

$E_{A,V}$ = Earnings after tax of acquiring and victim company shareholders (note that the earnings are those attributable to shareholders, i.e. those used to determine the EPS figures)

$PE_{A,V,AV}$ = Price earnings ratios of acquiring (A), victim (V) and combined companies (AV), where italics denote expected values

$S_{A,V}$ = Number of shares in acquiring and victim companies respectively

ER = The exchange ratio, expressed as the number of acquiring company shares offered in exchange for each victim company share

The wealth position of each shareholder in the acquired firm must be at least maintained for the merger to be acceptable:

$$P_{AV} \geq P_A \quad (4)$$

Similarly, the wealth position of the victim company shareholders must be at least maintained:

$$P_{AV} \geq P_V / ER \quad (5)$$

Substituting (3) and (1) into the left and right hand sides respectively of (4), and using the equality relationship, allows us to re-arrange terms and solve for the *maximum* exchange ratio, ER_A , acceptable to the acquiring company shareholders (who will seek to negotiate lower exchange ratios):

$$ER_A = \frac{PE_{AV}(E_A + E_V) - (PE_A \cdot E_A)}{PE_A \cdot E_A \cdot (1/S_A) \cdot S_V} \quad (6)$$

Similarly, substituting (3) and (2) into the left and right hand sides of the equality relationship in (5) gives the *minimum* exchange ratio acceptable to the victim company shareholders (who will try to negotiate higher exchange ratios):

$$ER_V = \frac{PE_V \cdot EPS_V \cdot S_A}{PE_{AV}(E_A + E_V) - (PE_V \cdot E_V)} \quad (7)$$

If $(E_A + E_V)$ is positive⁴, $\delta ER_A / \delta PE_{AV} > 0$ and $\delta^2 ER_A / \delta PE_{AV}^2 = 0$, so that ER_A is a linear function of PE_{AV} . Provided the expected value of the

combined entity is greater than the value of the victim company (clearly a necessary condition for the takeover or merger to go ahead), $\delta ER_V / \delta PE_{AV} < 0$ and $\delta^2 ER_V / \delta PE_{AV}^2 > 0$ implying that the minimum exchange ratio will be a decreasing convex function of the expected price earnings ratio. It can be seen from Figure 1 that the rational bargaining area is that lying to the right of both the ER_A and ER_V curves (shown by Quadrant I); all values of PE_{AV} to the right of the intersection of these curves result in positive gains from the merger overall. Quadrant II covers the area where the victim shareholders gain but the acquirer loses, Quadrant IV where the acquirer gains but the victim loses, whilst Quadrant III covers those areas where both parties lose as a result of the combination.

An Extended LG Model

The LG model, whilst of relevance to some UK takeovers, does not deal with the common UK situation where there is a cash alternative to the share-for-share offer. The UK City Code on Takeovers and Mergers (Rule 9) requires such an alternative where the acquiring company has purchased any of the intended victim company's shares for cash in the previous 12 months. Accordingly, we now extend the model to cover this situation. If p is the proportion of V's shareholders who are expected to accept the share-for-share offer, and $(1 - p)$ are expected to accept the cash alternative offered, then (3) becomes:

$$P_{AV} = PE_{AV} \cdot (E_A + E_V) / (S_A + S_V[ER \cdot p]) \quad (8)$$

Following the assumptions made by LG that there is no synergy in the first year, this assumes no additional debt financing costs in the year following the merger.⁵ Substituting (8) and (1) into the left and right hand sides of (4) and rearranging provides the equation for the maximum exchange ratio:

$$ER_A = \frac{PE_{AV}(E_A + E_V) - (PE_A \cdot E_A)}{PE_A \cdot E_A \cdot (1/S_A) \cdot S_V \cdot p} \quad (9)$$

To analyse the position of a shareholder in the victim company, we assume that the cash alternative offered per share is no greater than the perceived value of his or her wealth if the share-for-share alternative is accepted, as given by (4). Note

⁴This criterion is met for our sample, since we exclude all cases where joint earnings are negative (see *Methodology and Data*, below).

⁵This assumption is not material in our empirical testing of the model because, as explained below, we operationalise the LG 'no synergy' assumption by using the sum of the pre-combination earnings to derive the observed ex post PE ratio of the combined entity. The implication is that the expected present value of future financing costs, together with any change in risk associated with such financing, will be reflected in both the ex ante and ex post PE ratios of the combination. Nonetheless, an identical empirical result would be obtained from our tests if an assumed cost of financing was deducted from the combined earnings figure, since a corresponding alteration in PE_{AV} would also occur.

that if this was not the case, we would expect to see $p = 0$, and the takeover would be simply a cash deal.⁶ As before, substituting (8) and (2) into the left and right hand sides of (5) and rearranging gives:

$$ER_V = \frac{PE_V \cdot EPS_V \cdot S_A}{PE_{AV}(E_A + E_V) - p(PE_V \cdot E_V)} \quad (10)$$

However, at the *minimum* exchange ratio, this constraint on the value of the cash alternative amounts to a requirement that the cash alternative is equal to P_V . In the more realistic case where the cash offer is greater than this amount, we can reformulate (5) as:

$$P_{AV} \cdot ER \geq c$$

Where c is the cash alternative offered per share in V .

Taking the equality relationship and substituting (8) and (2) into this expression gives us the minimum exchange ratio when the cash offer is greater than P_V :

$$ER_V = \frac{c \cdot S_A}{PE_{AV}(E_A + E_V) - p(S_V \cdot c)} \quad (11)$$

With mixed offers, involving shares and cash, the ER_A constraint is unchanged, but taking the equality relationship in (5) gives:

$$P_{AV} = (P_V - K)/ER \quad (12)$$

Where K = cash portion of the offer per share in V (e.g. if an offer was made for V of '1 plus £1 for 5', $ER = 0.2$ and $K = £0.20$).

Substituting (3) and (2) into the left and right hand sides of (11) and rearranging gives:

$$ER_V = \frac{PE_V \cdot EPS_V \cdot S_A - K \cdot S_A}{PE_{AV}(E_A + E_V) - S_V([PE_V \cdot EPS_V] - K)} \quad (13)$$

It can similarly be shown that in the case where the mixed offer has an all cash alternative attached, ER_A is given by (9), whilst ER_V is given by:

$$ER_V = \frac{PE_V \cdot EPS_V \cdot S_A - K \cdot S_A}{PE_{AV}(E_A + E_V) - S_V \cdot p([PE_V \cdot EPS_V] - K)} \quad (14)$$

Having described and extended the LG model, we now look at the methodology employed in testing it. Note that if the variables are observed immediately prior to and immediately post the merger taking place, and announcement and consummation are both contemporaneous and unanticipated, an unambiguous market reaction will be impounded in the PE_A , PE_V and PE_{AV} terms. However, to reconcile our results with those

obtained from event studies, we recognise that when these variables are observed at different points in time (as is required by our study), contamination of results may occur because general market movements unconnected with the merger will influence share prices. We control for this by our index adjustment of share prices, which we perform on both a simple Financial Times All Share Index (FTASI) adjustment basis⁷, and a beta adjustment basis (in a manner similar to that used in Franks and Broyles, 1979, pp. 189–90).

Methodology and data

At any point, t , following the completion of the merger or takeover, we can observe the market price of the combined firm and derive a multiple (PE_{AVt}) of the sum of the pre-combination earnings from:

$$PE_{AVt} = \frac{P_{AVt}}{(E_A + E_V)/(S_A + (S_V \cdot p \cdot AER))} \quad (15)$$

Where: p = the actual proportion of V 's shareholders who received the share-for-share alternative
 AER = actual exchange ratio.

Note that using the sum of the pre-combination earnings effectively operationalises the 'no synergy' assumption of Larson and Gonedes. Furthermore, in testing the LG model, we assume that $p = p$, i.e., that the ex post proportion of V 's shareholders who receive the share-for-share alternative is perfectly anticipated by A . Given that on average over 90% of victim company shareholders in our sample opt for this alternative, this assumption may not be as onerous as it first appears.⁸ Furthermore, this proportion is defined as the percentage of all the victim shareholders who end up receiving shares from the acquirer, so that the cash proportion includes all those shares purchased in the market prior to the takeover.

We measure PE_{AVt} at the end of the month of merger completion, and one month later.⁹ It is possible to test the LG model by substituting this ex post price earnings ratio into equations (6) and

⁷This is analogous to a version of the market model where $\alpha = 0$, $\beta = 1$. However, the use of share prices and the FTASI means that dividends are ignored. This is a weakness of both our study and that of CN; nonetheless, we feel that using adjusted prices offers a more meaningful analysis of the model's empirical validity than using 'raw' price data, particularly in view of the movement in the FTASI that occurred during the period of our study, which despite the events of October 1987 showed considerable overall gains.

⁸Note that we have excluded from our sample all those cases where $p < 0.5$.

⁹Theoretically, in an efficient market, all the relevant information concerning the takeover should be impounded in the share price on completion of the takeover, since that is the point at which acquisition has become a certain rather than a probable event. However, CN and several event studies (e.g. Firth, 1979) investigate price behaviour one month after merger and we follow this to allow our results to be compared with those of other studies.

⁶In order to ensure that this assumption is not violated, we later exclude from our empirical test all those deals where $p < 0.5$.

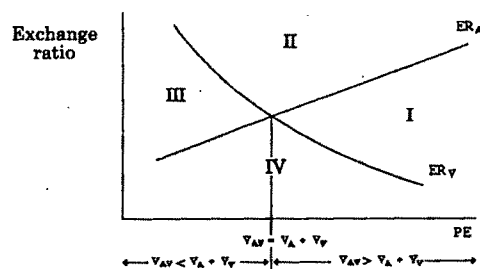
(7) (or, in the case of cash alternative and mixed offers respectively, equations (9) and (10), or (13) and (14)) and solving for the implied ER_A and ER_V values. This raises the critical question of using the appropriate pre-merger values for P_A and P_V figures; there is a clear trade-off between using prices that reflect the latest possible pre-merger accounting data and avoiding any price effects resulting from market anticipation of the merger. We chose to use the month end prices five months before the month of merger, as most UK studies would appear to suggest that such an interval before completion could be expected to capture most of the pre-merger price effects that may occur. Franks, Broyles and Hecht (1977) provide evidence that such price effects start to arise four months prior to completion, whilst Firth (1979) indicates that abnormal returns in the acquiring company are found one month before announcement. Franks and Harris (1989) show abnormal price behaviour in victim companies four months before announcement, with the majority occurring in the month of announcement (23.3% from a total of 29.7%). In the US, Halpern (1973) finds that abnormal price behaviour starts to occur up to seven months before announcement. In a successful takeover, around one month is likely to elapse between announcement and completion, although in the case of strongly contested mergers this period could extend to several months. On balance, our choice of five months before takeover would appear to be likely to avoid any serious pre-merger price effects but it may well include some.

The limitation must be borne in mind whilst looking at our results since if pre-merger price effects are present at this interval, classification errors may occur that will tend to lead to a rejection of the LG model as the merger benefits will be understated. However, in order to test the seriousness of this problem, we carried out a sensitivity analysis on the victims' pre-acquisition price and find little effect from a price decrease of 5%; even a reduction of 10% changes less than 5% of our classifications, and only in one case is the LG model accepted when it had been rejected using the actual pre-acquisition price. Although the UK evidence (as cited above) suggests that a premium may be present in the victim's share price five months before acquisition, it also suggests that this premium is not likely to exceed 10%. US evidence provided by Kummer and Hoffmeister (1978) shows that the average abnormal return of victim companies is around 6% for the four months period preceding announcement, and negative before this.

Once the implied values of ER_A and ER_V have been found, the actual quadrant status of the takeover or merger (see Figure 1) is determined as follows:

Figure 1

The impact of differing bargaining outcomes on the gains and losses experienced by victim and acquiring company shareholders. Quadrant I is the area where both gain, Quadrant II where victim shareholders gain and acquirer shareholders lose, Quadrant III where both lose and Quadrant IV where the acquirer gains but the victim loses



If

$ER_A > AER > ER_V$ then Quadrant I (i.e. both parties gain)

$AER > ER_A$ and ER_V then Quadrant II (i.e. V gains, A loses)

$ER_V > AER > ER_A$ then Quadrant III (i.e. both parties lose)

ER_A and $ER_V > AER$ then Quadrant IV (i.e. A gains, V loses)

Clearly, the only classification compatible with the rationale of the LG model is Quadrant I. In order to reconcile tests of the LG model with those obtained from event studies, we report two alternative tests using FTASI and beta adjustments so that all share prices are re-based using market index levels five months prior to the merger.¹⁰

An additional test is to compare the ex post PE ratio derived from (15) with the ex ante PE ratio found by substituting the actual exchange ratios into the LG model and solving for PE_{AV} . At the intersection of the ER_A and ER_V curves, from (4) and (5), $ER = P_V/P_A$. If the takeover premium is positive ($AER > P_V/P_A$), the ER_V constraint is met, and we therefore solve for the ex ante PE_{AV} ratio in equation (6) and generalising for the case

¹⁰Formally, this involves restating (6) and (7) so that (6) becomes:

$$ER_A = \frac{PE_{AV}(E_A + E_V) - (PE_A \cdot E_A) \cdot \beta_A(M_t/M_{t-n})}{PE_A \cdot E_A \cdot (1/S_A) \cdot S_V \cdot \beta_A(M_t/M_{t-n})} \quad (6a)$$

where: β_A = beta of acquirer (assumed equal to 1.0 in the case of the FTASI adjustment)

M_t, M_{t-n} = market index at time t , and $t-n$ respectively (where $n = 5$ at consummation, and $n = 6$ one month later).

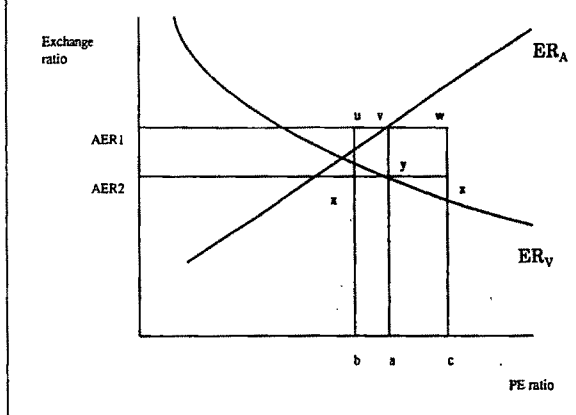
Similarly, (7) becomes:

$$ER_V = \frac{PE_V \cdot EPS_V \cdot S_A \cdot \beta_V(M_t/M_{t-n})}{PE_{AV}(E_A + E_V) - (PE_V \cdot E_V) \cdot \beta_V(M_t/M_{t-n})} \quad (7a)$$

where: β_V = beta of victim (assumed equal to 1.0 in the case of the FTASI adjustment).

Figure 2

Ex ante and ex post PE ratios for two given actual exchange ratios, AER 1 and AER 2: point a shows the implied minimum ex ante PE ratios; c shows satisfactory ex ante PE ratios; and b shows unsatisfactory ex ante PE ratios



where there is a cash alternative offered, which, rearranging, gives:

$$PE_{AV} = \frac{P_A(AER(S_V \cdot p) + S_A)}{(E_A + E_V)} \quad (16)$$

This is illustrated in Figure 2, where we assume the actual exchange ratio is AER1. The implied minimum ex ante PE ratio (a) is then found from the intersection of a horizontal line drawn from AER1 with the ER_A curve (point v). In this case, if the ex post PE ratio is c, the LG model holds, as the quadrant location is determined by point w; it fails to do so if the ex post ratio is b, where the quadrant location is point u.

If, however, the premium is negative ($AER < P_V/P_A$), the solution is found by solving for PE_{AV} in equation (7)¹¹, which on rearrangement gives:

$$PE_{AV} = \frac{P_V(S_A + S_V(AER))}{AER(E_A + E_V)} \quad (17)$$

This can be similarly seen from Figure 2 by assuming that the actual exchange ratio is given by AER2. The minimum ex ante PE ratio (a) is now found from point y, where points z and x give examples of PE ratios (c and b) which are and which are not compatible with the model respectively. Note that prices used in the computation of

the PE ratios in (16) and (17) are again the month end prices five months before takeover.¹²

All price data are extracted from the London Business School Share Price Database, the information on takeover terms is taken from *Acquisitions Monthly* (or the *Financial Times*, where copies of *Acquisitions Monthly* are unavailable), and the earnings data are the earnings attributable to shareholders as shown in the latest pre-takeover accounts of the two companies. The number of shares is either that shown in the annual report, or that shown on the LBS Database, whichever is the more up-to-date (if the number of shares in issue at the time of takeover is disclosed, then that figure is used). The information on the number of shares issued on takeover (hence allowing us to determine the value of p) is found from the acquiring company's annual report and accounts for the year in which the takeover was completed. Finally, following Limmack (1991), we use the LBS Risk Measurement Service (LBSRMS) betas; the primary purpose of using these betas rather than calculating them using the usual 60-monthly observations is that share price data availability constraints would have reduced our sample by 35 takeovers, whereas using LBSRMS data only reduces the sample size by five takeovers.¹³

Our initial sample consists of 212 takeovers where the offer was share-for-share (with or without a cash alternative) or mixed, between January 1984 and December 1988. We then excluded all those companies where any of the following occurred:

- the offer included any security other than shares;
- more than one class of share capital was involved;
- the acquirer's accounting data did not identify which takeover an issue of shares was associated with;
- there was missing share price data;
- the shares of either acquiring or victim companies had not been listed for at least 12 months prior to merger;
- the joint earnings of the two companies were negative;
- the offer terms appeared not to agree with the data disclosed in the accounts of either party;
- accounting data are unavailable;
- the percentage of victim shareholders taking the cash alternative exceeded 50%.

¹²In the case of the index and beta adjusted tests, 6a and 7a are rearranged and solved for the ex ante PE ratio giving:

$$PE_{AV} = \frac{P_A \cdot \beta_A (M_i/M_{i-n})(AER(S_V) + S_A)}{(E_A + E_V)} \quad (16a)$$

where the premium is positive, and:

$$PE_{AV} = \frac{P_V \cdot \beta_V (M_i/M_{i-n}) \cdot (S_A + S_V(AER))}{AER(E_A + E_V)} \quad (17a)$$

where the premium is negative.

¹³The LBSRMS estimates betas using additional data to that available on the LBS Share Price Database, and hence needs considerably less than 60 monthly observations.

¹¹In the case of cash or mixed offers, equations (9) or (10) and (13) or (14) are solved for PE_{AV} .

Table 1
Classifications of Mergers by Larson-Gonedes Quadrant Location Based on Unadjusted Prices

	Classification at completion				Classification after one month			
	I	II	III	IV	I	II	III	IV
I	69				61	6	1	1
II		16			5	11	0	0
III			6		1	0	4	1
IV				4	0	0	1	3
I					67			
II						17		
III							6	
IV								5

This left a final sample of 95 takeovers that were included in our analysis.¹⁴ In addition, using beta adjustments required LBSRMS betas to be available for each company; imposing this requirement lowers the number of takeovers in the beta-adjusted sample to 90.

In addition to testing the LG model using actual, index and beta adjusted market prices, we also undertake a sensitivity analysis of our results to allow for both changes in the victim's price five months prior to acquisition (as discussed above) and for changes in the consummation price of the combined entity, in order to test the robustness of the model.

It should be noted that as in other market based research, our methodology tests the joint hypothesis that the stock market is price efficient and that the LG model describes the determination of exchange ratios.

Results

LG Test Results

In Table 1 we show our results based on unadjusted prices in the manner adopted by Conn and Nielsen, broken down by quadrant and by change in quadrant between completion of the takeover and one month later; these results are also summarised in Figure 3. Initially, 69 of our sample of 95 companies are classified as predicted by the LG model, which is a stronger result than that found by CN. Tables 2A and 2B show the results on the FTASI and beta adjusted bases respectively, whilst Table 3 analyses the unadjusted and adjusted prices according to whether the bid was on a share-for-share, cash alternative, or mixed offer basis.

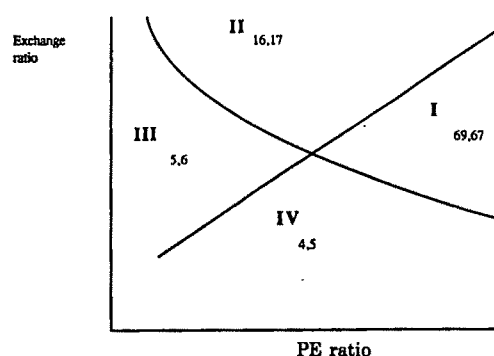
We then conduct a sensitivity analysis of the FTASI adjusted and beta adjusted prices to allow for changes in the acquiring company's share price

at consummation and, separately, the victim company's share price five months before takeover. These results are shown in Tables 4A and 4B and 5A and 5B respectively. Perhaps surprisingly, the model appears to be insensitive to changes in the victim's share price, although slightly increased sensitivity is apparent on a beta-adjusted basis.

In order to test the significance of the observed quadrant distribution, we perform two statistical tests. The first of these is the conventional χ^2 test, the results of which are discussed in the text. One problem with this conventional test is that it merely tests randomness against non-randomness, whereas we wish to test randomness against the specific prediction of the LG model. We do this by formulating the test described fully in the appendix. In principle this uses two parameters θ and ψ to estimate probabilities of quadrant location, θ^2 giving the probability of both parties gaining from the merger (Quadrant I). We then use these parameters to conduct a Generalised Likelihood Ratio (GLR) test of the LG model for unadjusted,

Figure 3

Empirical classification of number of mergers by quadrant location based on unadjusted prices (the first figure in each case shows the number of mergers at completion, the second the number of mergers one month later)



¹⁴A list of these takeovers is available from the authors on request.

Table 2A
Classifications of Mergers by Larson-Gonedes Quadrant Location Based on FTASI
Adjusted Prices

	<i>Classification at completion</i>				<i>Classification after one month</i>			
	<i>I</i>	<i>II</i>	<i>III</i>	<i>IV</i>	<i>I</i>	<i>II</i>	<i>III</i>	<i>IV</i>
I	45				38	4	2	1
II		35			8	26	1	0
III			10		1	1	8	0
IV				5	0	0	2	3
I					47			
II						31		
III							13	
IV								4

Table 2B
Classifications of Mergers by Larson-Gonedes Quadrant Location Based on Beta
Adjusted Prices

	<i>Classification at completion</i>				<i>Classification after one month</i>			
	<i>I</i>	<i>II</i>	<i>III</i>	<i>IV</i>	<i>I</i>	<i>II</i>	<i>III</i>	<i>IV</i>
I	44				35	4	2	3
II		34			7	26	1	0
III			9		1	1	7	0
IV				3	0	0	1	2
I					43			
II						31		
III							11	
IV								5

FTASI adjusted and beta adjusted versions, the results of which are reported in Table 6. These show that the null hypothesis of randomness is rejected in favour of the LG model at the 1% level in each case.

Analysis of the unadjusted results indicates that the model's predictions on bargaining area hold in the majority of cases; the χ^2 statistic is 118.4 at completion and 108.7 after one month, with both values significant at the 1% level. However, the

Table 3
Classifications of Mergers by Larson-Gonedes Quadrant Location By Offer Category

<i>Category</i>	<i>Classification at completion</i>				<i>Classification after one month</i>			
	<i>I</i>	<i>II</i>	<i>III</i>	<i>IV</i>	<i>I</i>	<i>II</i>	<i>III</i>	<i>IV</i>
Unadjusted								
Share (100%)	31	4	3	3	32	4	2	3
Cash alt.	31	10	1	1	27	12	2	2
Mixed	7	2	2	0	8	1	2	0
Total	69	16	6	4	67	17	6	5
FTASI adjusted								
Share (100%)	20	11	7	3	23	8	8	2
Cash alt.	23	17	1	2	19	19	3	2
Mixed	2	7	2	0	5	4	2	0
Total	45	35	10	5	47	31	13	4
Beta-adjusted								
Share (100%)	20	11	6	2	22	9	6	2
Cash alt.	22	16	1	1	15	19	3	3
Mixed	2	7	2	0	6	3	2	0
Total	44	34	9	3	43	31	11	5

Table 4A

Sensitivity of Classifications of Mergers by Larson-Gonedes Quadrant Location to Changes in Acquirer's Price at Completion (FTASI Adjusted)

<i>Original</i>	<i>No.</i>	<i>Acquirer's price -5%</i>				<i>Acquirer's price +5%</i>			
		<i>I</i>	<i>II</i>	<i>III</i>	<i>IV</i>	<i>I</i>	<i>II</i>	<i>III</i>	<i>IV</i>
I	45	38	5	0	2	45	0	0	0
II	35	0	33	2	0	8	27	0	0
III	10	0	0	10	0	1	1	7	1
IV	5	0	0	0	5	1	0	0	4
Total	95	38	38	12	7	55	28	7	5

Table 4B

Sensitivity of Classifications of Mergers by Larson-Gonedes Quadrant Location to Changes in Acquirer's Price at Completion (Beta-adjusted)

<i>Original</i>	<i>No.</i>	<i>Acquirer's price -5%</i>				<i>Acquirer's price +5%</i>			
		<i>I</i>	<i>II</i>	<i>III</i>	<i>IV</i>	<i>I</i>	<i>II</i>	<i>III</i>	<i>IV</i>
I	44	32	8	1	3	44	0	0	0
II	34	0	30	4	0	9	25	0	0
III	9	0	0	9	0	0	1	8	0
IV	3	0	0	0	3	0	0	0	3
Total	90	32	38	14	6	53	26	8	3

comparison of ex ante and ex post price earnings ratios provides slightly more ambiguous evidence. The LG model predicts that a merger will go ahead

if the ex post price earnings ratio is greater than or equal to that required by the exchange ratio conditions (i.e. the ex ante price earnings ratios as

Table 5A

Sensitivity of Classifications of Mergers by Larson-Gonedes Quadrant Location to Changes in Victim's Price at Completion (FTASI Adjusted)

<i>Original</i>	<i>No.</i>	<i>Victim's price -5%</i>				<i>Victim's price -10%</i>			
		<i>I</i>	<i>II</i>	<i>III</i>	<i>IV</i>	<i>I</i>	<i>II</i>	<i>III</i>	<i>IV</i>
I	45	45	0	0	0	45	0	0	0
II	35	0	35	0	0	0	35	0	0
III	10	0	2	8	0	0	4	6	0
IV	5	1	0	0	4	1	0	0	4
Total	95	46	37	8	4	46	39	6	4

Table 5B

Sensitivity of Classifications of Mergers by Larson-Gonedes Quadrant Location to Changes in Victim's Price at Completion (Beta-adjusted)

<i>Original</i>	<i>No.</i>	<i>Victim's price -5%</i>				<i>Victim's price -10%</i>			
		<i>I</i>	<i>II</i>	<i>III</i>	<i>IV</i>	<i>I</i>	<i>II</i>	<i>III</i>	<i>IV</i>
I	44	41	3	0	0	41	3	0	0
II	34	0	34	0	0	0	34	0	0
III	9	0	1	8	0	0	2	7	0
IV	3	0	0	0	3	0	0	0	3
Total	90	41	38	8	3	41	39	7	3

Table 6
Maximum Likelihood Estimators Derived from the Generalised Likelihood Ratio Test
Described in the Appendix

	θ^*	ψ^*	$\chi^2(1)$	GLR Test $\chi^2(2) (Q)$
Unadjusted, at completion	0.84	0.80	4.02+	103.28++
Unadjusted, after 1 month	0.82	0.77	4.27+	91.79++
FTASI adjusted, at completion	0.68	0.88	0.06	51.72++
FTASI adjusted, after 1 month	0.68	0.89	2.28	48.53++
Beta-adjusted, at completion	0.69	0.92	0.09	58.42++
Beta-adjusted, after 1 month	0.68	0.86	0.64	44.16++

+, ++ indicate significance at 5% and 1% levels respectively.

Low $\chi^2(1)$ values indicate close agreement between observed counts and expected values based on θ^* and ψ^* . High $\chi^2(2)$ values indicate acceptance of the LG predicted quadrant distribution and rejection of the null hypothesis (random distribution across quadrants).

specified by equations (15) or (16)). Since we can observe the ex post PE ratio from (14), we compare this with the ex ante PE ratio at completion of the takeover and one month later, the null hypothesis being that there is no significant difference between the distribution of the ex ante and ex post ratios. The distribution of the paired differences is examined, and the appropriate test statistic depends on the distribution of the paired differences; if this is normal, then a paired t-test should be used, whereas if the normality assumption is invalid the Mann-Whitney U test should be used.

The distribution of ex post and ex ante PE ratios, both on adjusted and unadjusted prices, and the distribution of the differences between ex post and ex ante ratios ($PE_{AV} - PE_{AV}$) were all tested and found to exhibit positive skewness and positive kurtosis, which suggests that the t-test is not appropriate. However, we show this statistic to allow comparison of our results with those of CN, who report 2.101 on completion and 2.223 after one month; they do not comment on the normality of their paired difference distribution. In the case of our sample, on an unadjusted price basis the ex post PE ratio has a mean greater

than that of the ex ante PE ratio but this is significant at the 5% level (see Table 7). When interpreting these, it should be borne in mind that the quadrant location test directly tests the LG model, whilst the comparison of PE ratios tests the size of the mutually shared gain from takeover.

Finally, we compared the market value of the combined entity at takeover and one month later with the sum of the market values of the two companies five months before takeover. The results suggest that the majority of takeovers result in wealth gains (see Table 8, columns 2 and 3); furthermore, the average premium on takeover is 45%. However, it should be noted that these figures have not yet been adjusted for general market movements, and thus they are not comparable with the results obtained from event studies (although see later).

One set of unadjusted figures that are of interest are the price earnings ratios at acquisition of the acquiring and victim companies; the median values are 16.7 and 18.9 respectively, which runs counter to the (apparently) widely held belief that acquiring companies are only interested in victims with lower price earnings ratios than their own.

Table 7
Means and Paired Differences of Implied Minimum Ex Ante and Ex Post Price Earnings Ratios Using
Unadjusted, FTASI adjusted, and Beta-adjusted Prices

	Unadjusted prices		FTASI adjusted prices		Beta-adjusted prices	
	Completion	+1 month	Completion	+1 month	Completion	+1 month
Ex post PE ratio (PE_{AV})	18.721	18.907	16.580	16.493	16.536	16.461
Ex ante PE ratio (PE_{AV})	17.205	17.205	17.205	17.205	17.092	17.092
$PE_{AV} - PE_{AV}$	1.516	1.702	-0.625	-0.712	-0.556	-0.631
T-test	2.28	2.37	-1.17	-1.15	-0.98	-1.00
Mann-Whitney U test prob (2 tailed corrected for ties)	0.125	0.185	0.624	0.347	0.7228	0.4762

Table 8
Total Takeover Wealth Gains by Larson-Gonedes Quadrant Location Using Unadjusted, FTASI adjusted, and Beta-adjusted Prices

Quadrant (1)	Unadjusted prices		FTASI adjusted prices		Beta-adjusted prices	
	Wealth loss (2)	Wealth gain (3)	Wealth loss (4)	Wealth gain (5)	Wealth loss (6)	Wealth gain (7)
At completion						
I	0	69	0	45	0	44
II	6	10	24	11	16	18
III	6	0	10	0	9	0
IV	1	3	2	3	1	2
Total	13	82	36	59	26	64
%	14%	86%	38%	62%	29%	71%
After one month						
I	0	67	0	47	0	43
II	11	6	24	7	19	12
III	6	0	13	0	10	0
IV	0	5	1	3	2	4
Total	17	78	38	57	31	59
%	18%	82%	40%	60%	34%	66%

An Extension and Reconciliation with Event Studies

It might be argued that any model failing to take account of the fairly large movement in the stock market between January 1984 and December 1988 is less than ideal. Furthermore, the basic LG model fails to take account of the impact of systematic risk on the share prices of acquirer and victim companies. Accordingly, we analyse the results obtained from both a FTASI adjusted LG model, and a beta adjusted LG model. These adjustments also enable us to compare our results with those obtained under an event study.

Using a simple market-index adjustment gives the quadrant locations shown in Table 2A, and

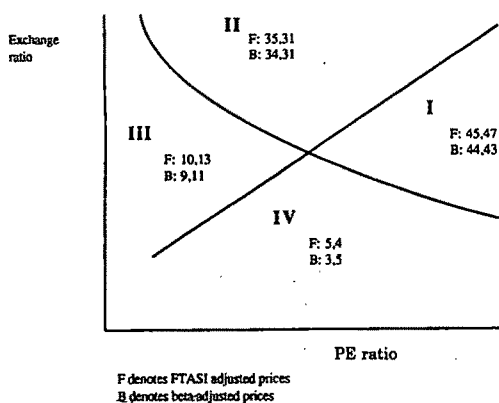
summarised in Figure 4, and these appear to provide some support for the LG model with just under half of all cases appearing in quadrant I. These cases represent outcomes with a clear gain to both parties. Instances of wealth loss to both parties (quadrant III) are not particularly common, but acquiring firms lose in a significant number of cases (summing Quadrants II and III gives 45 out of 95 and 44 out of 95 on completion of takeover and one month afterwards). Acquired companies lose (Quadrants III and IV) in only a minority of cases, and these are more common in cases involving equity consideration (Table 3). The χ^2 statistics show that quadrant locations are significantly different from an equal likelihood distribution of values at the 1% level. This support for the LG model is confirmed by the GLR test statistic reported in Table 6.

On a beta-adjusted basis, the results (shown in Table 2B) are marginally less supportive of the LG model after one month, although 48% of cases still fall into Quadrant I. Again, acquiring firms now lose in almost as many cases as fall into Quadrant I. Once more, the χ^2 statistics are significant at the 1% level, with the significance of this result confirmed by the GLR test (Table 6). Overall, the results appear to be largely unaffected by the form of price adjustment used.

The paired difference test results given in Table 7 show that the average ex post PE ratios are actually less than the ex ante ratios¹⁵ for both FTASI and beta-adjusted prices, but not

Figure 4

Empirical classification of number of mergers by quadrant location based on adjusted prices (the first figure in each case shows the number of mergers at completion, the second the number of mergers one month later)



¹⁵The distribution of the ex ante PE ratio has both greater positive skewness and greater positive kurtosis than that exhibited by the ex post ratios, so that a comparison of the means is misleading.

Table 9
Means and Paired Differences of Actual, Maximum and Minimum Exchange Ratios

	<i>FTASI adjusted prices</i>		<i>Beta-adjusted prices</i>	
	<i>Completion</i>	<i>+1 month</i>	<i>Completion</i>	<i>+1 month</i>
Actual exchange ratio (AER)	1.206	1.206	1.566	0.984
Maximum exchange ratio (ER _A)	1.603	0.916	1.221	1.221
Minimum exchange ratio (ER _V)	0.839	0.902	0.826	0.866
ER _A – AER: Value	0.397	–0.290	0.345	–0.237
T-test	0.59	–0.290	0.50	–0.23
Mann-Whitney U test probability ¹	0.955	0.755	0.989	0.954
AER – ER _V : Value	0.367	0.303	0.395	0.355
T-test	3.24**	2.31*	3.45**	2.98**
Mann-Whitney U test probability ¹	0.025*	0.037*	0.025*	0.034*
Kruskal-Wallis significance level ²	0.099	0.153	0.098	0.126

1. Two tailed test, corrected for ties.

2. Corrected for ties.

significantly so.¹⁶ However, in the case of FTASI adjusted results our ex ante price earnings ratios are calculated across all 95 takeovers, eight of which involve loss making victims. On average, these combinations have ex ante price earnings ratios that are significantly above those observed where there are profit making victims; excluding these causes the ex ante mean PE ratio to fall to 16.5 but also causes the FTASI ex post adjusted ratio on completion to fall to 16.174 and the ratio after one month to fall to 16.137 (the appropriate figures for the unadjusted price ex post PE ratios are 18.218 and 18.551; since the ex ante PE ratio is identical, being based on the prices five months before acquisition, the significance of the paired differences would be *reduced*). It should also be noted that this loss-making group exhibits a larger than average number of Quadrant II cases, with less Quadrant I cases, but the size of the loss making sample precludes any statistical analysis of this effect. CN do not report on any comparative effect in their US study and they do not appear to exclude loss making victims from their analysis. Furthermore, given that the LG model is concerned with exchange ratio determination, there is no reason to exclude such cases unless the combined entity earnings are negative.¹⁷

The figures in Table 8 are presented in a form that facilitates comparison with the results of event studies. Limmack (1991, p. 250) reports on the combined wealth effects of takeovers, and notes that these are not, on average, significantly different from zero. Limmack also notes that 65% of mergers result in wealth gains around the time

of merger. In Table 8, we report the number of mergers resulting in overall wealth gains or losses; the percentages in which an overall wealth gain occurs appear to be consistent with Limmack's findings. Our results suggest that although on an FTASI adjusted basis the number of takeovers resulting in overall wealth gains exceed those with no overall wealth gains (Table 8, columns 4 and 5), there is no conclusive proof that this is significant; the χ^2 test is significant at the 5% level on completion of the merger, but just fails to be so one month afterwards. In this context, it should be noted that Franks, Harris and Mayer (1988) provide evidence that all-cash takeovers result in greater wealth gains than all-equity bids.

On a beta-adjusted basis (Table 8, columns 6 and 7), the χ^2 test is significant at the 5% level, suggesting that there are positive wealth gains from mergers. However, an important caveat here is that the strength of this conclusion depends on whether or not the market price of the acquiring company correctly impounds the result of the takeover one month after consummation (see Franks and Harris, 1989 and Limmack, 1991).

On the index and beta-adjusted prices, we perform an additional test to investigate the degree to which exchange ratios fall within the predicted quadrants. In Table 9 we show the results of paired difference tests on average ER_A – average AER and average AER – average ER_V. As the data all exhibit non-normal distribution characteristics¹⁸, the appropriate test is the Mann-Whitney U test (although we also report the t-test result). The result, for both index and beta adjustments, is that, whilst the maximum exchange ratio (ER_A) is greater than the actual exchange ratio (AER) (as predicted by the LG model) at the time of merger consummation, it is not significantly different.

¹⁶Even (wrongly) using the t-test statistic fails to find any significant differences between the ex post and ex ante PE distributions; this clearly contradicts the findings of Conn and Nielsen.

¹⁷We were forced to drop one company from our original data set for this reason.

¹⁸Being leptokurtic and positively skewed.

Table 10

Comparison of Larson-Gonedes Quadrant Location Tests with those Obtained by Conn and Nielsen (US)

	Classification at completion %				Classification after one month %			
	I	II	III	IV	I	II	III	IV
Conn and Nielsen	55	27	15	3	51	31	14	4
Unadjusted prices	73	17	6	4	71	18	6	5
FTASI adjusted prices	47	37	11	5	49	33	14	4
Beta-adjusted prices	49	38	10	3	48	34	12	6

Somewhat surprisingly, after one month the maximum exchange ratio is less than the actual exchange ratio, although this result is not significant. As predicted by the LG model, the Mann-Whitney U test confirms that the actual exchange ratio is significantly greater than the minimum exchange ratio (ER_V) at the 5% level. These results appear to provide further evidence that victim company shareholders are the principal beneficiaries of takeovers but that there are neither significant gains nor losses accruing to acquiring company shareholders. Finally, we carry out a Kruskal-Wallis test to determine whether the ER_A , AER and ER_V observations are from different populations; this test fails to reject the null hypothesis, at the 5% level, that the medians are the same for all three groups.

To test the robustness of the LG model, we perform a sensitivity analysis on our results by allowing the acquirer's price to move by plus or minus 5%;¹⁹ the results are shown in Tables 4A and 4B, along with the case changes. As can be seen, the most noticeable impact of a price fall is to relocate takeovers from Quadrant I to Quadrant II in around 10% of cases under the FTASI adjustment, whilst a price rise does the opposite. The model appears to be more sensitive to changes in the acquiring company's beta-adjusted price, particularly when the price movement is negative.

Overall, our results may be viewed as providing some support for the LG model, though not conclusively so. On an FTASI adjusted basis, our results are not dissimilar from those of CN, although not surprisingly their study, on an unadjusted price basis, provides slightly stronger support. Comparisons here are difficult, since CN use pre-tax earnings and unadjusted prices, whilst we use post tax earnings attributable to sharehold-

ers and FTASI adjusted prices. Comparative quadrant location percentages are given in Table 10. Our results are also in line with all those studies that suggest, on average, acquired companies earn significant abnormal returns. On an adjusted basis, acquired company shareholders gain 84% of the time on completion of the merger and on 82% of occasions after one month (found by summing Quadrant I and II figures). The average premium paid, after price adjustment, is approximately 28%, which is in line with that found by other UK studies. Franks *et al.* (1977) found that the effective bid premium averages about 26% in the breweries industry compared with the premium of 33% for all industries reported by Newbould (1970). More recently, Franks and Harris (1989) record a total abnormal return of 29.7% amongst an equally weighted sample of 1,814 target companies during the period 1955 to 1985.

One possible explanation why more takeovers do not fall into the predicted Quadrant I may be the existence of managerial motives for mergers. Other research indicates that these motives may be an important influence in the takeover decision (Newbould, 1970; Morck, Shleifer and Vishny, 1990). Interestingly, Firth (1991) finds that if acquisitions result in a reduction in the market value of the acquiring firm, senior managements still appear to gain. Such a result is compatible with a model incorporating a managerial utility function, whereas the LG model is concerned solely with shareholder satisficing.

Important limitations to our study are the exclusion of dividends and the associated ex-dividend price effects, the use of the FTASI and betas as proxies for systematic risk effects and the possibility of sample bias introduced by our exclusion criteria. A further point here is that although the LG model is compatible with models that price systematic risk, in as far as the anticipated combined entity price earnings ratio can be a function of the systematic risk of the business combination, it does not explicitly take account of any risk variable. Additionally, CN state (p. 758): 'If a merger results in reduction of unsystematic risk that is unobtainable for existing stockholders ... the risk return position may actually improve

¹⁹Although we make no strong claims for the percentage chosen, the LBSRMS average specific risk values published at quarterly intervals throughout the period of our study are remarkably consistent at around 35% to 36% per annum. Taking 36% gives us a five monthly standard deviation of 23.24%. Constructing a portfolio of 95 acquiring companies, with equal weights and assuming all have equal specific risk, would give us a portfolio specific risk of 2.38%. Using a 5% sensitivity factor might therefore be regarded as very crudely approximating a 95% confidence limit.

even if return declines'; to the extent that this is the case, an apparently 'irrational' exchange ratio may actually be the opposite. In effect, this is similar to the argument that the PE ratio itself can be a proxy for omitted risk variables. Particular cases of interest here would perhaps include diversification or divestment by closely held companies, and reduction in costly bankruptcy risk.

It should also be noted that a number of companies were excluded from our analysis either because multiple takeovers were undertaken with no accounting disclosure of share issues associated with each takeover, or because consideration other than cash or a single class of share capital was involved. It is possible that our results are biased by this, in that 'successful' acquirers (i.e. those who would be located in Quadrants I or IV) may be those that perform multiple takeovers with minimal accounting disclosure, or those that use other forms of financing, such as convertible unsecured loan stock. An additional limitation, as CN point out, is the single period wealth constraint in the LG model; effectively, both our test and CN's test assumes that markets anticipate any future merger benefits accruing to the combined entity and incorporate these in the ex post price earnings multiple paid for shares in the combination.

Conclusion

The aim of this paper has been to test the Larson-Gonedes model which is the only formal model of bargaining that uses price earnings ratios to determine boundaries for negotiating business combinations. The basic model, which was modified to make it applicable to the UK, was tested and the results compared with those of Conn and Nielsen in the US. The model was assessed using the conventional χ^2 test, but a new application of a GLR test was developed in addition. Our findings suggest that there is greater support for the basic Larson-Gonedes model in the UK than in the US.

One of the inherent weaknesses of the basic Larson-Gonedes model is that it does not take general market movements into consideration. Accordingly, we modify our test of the basic model to allow for movements in share prices attributable to general market factors. As a proxy for these other factors, we have used both the FTASI, which is analogous to using the market model with $\alpha = 0$ and $\beta = 1$, and a model analogous to the market model using LBSRMS betas. We found that the simple market index adjustment provides some support for the model. However, the results based on a beta-adjusted paradigm one month after the bid is marginally less supportive of the Larson-Gonedes model.

Our findings that the acquired company shareholders gain, on average, and that the effect on the acquiring company shareholders is fairly neutral, are consistent with results based on an

events studies approach. The advantage of the Larson-Gonedes model is that it may well help to determine the boundaries for negotiation and reduce the number of abortive takeovers. Another advantage is that it is a model based on parameters that managers are familiar with in undertaking company valuations. As such, it may appear that the whole area of exchange ratio determination is worthy of further investigation. A particular area of interest might involve an investigation of post acquisition price earnings ratios and the role of managerial objectives in exchange ratio determination. A further recommendation for future research arises from the fact that this paper has focused on the testing of the LG model in a UK context on a sample of successful takeovers between 1984 and 1988. It would be interesting to apply the model to unsuccessful bids. This might be operationalised by looking at share prices after the bid announcement as at that time the market may be expecting the bid to be successful. The quadrant analysis can then be undertaken using PE_{AV} at the time of announcement. Other work could be undertaken involving an extension of the period of analysis of the merger effects, and the consideration of possible changes in risk arising from the merger.

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Appendix

Explanation of Generalised Likelihood Ratio test statistic, Q .

A test of random outcomes of takeover gains and losses against the LG model is given below. We first note that

$$\begin{aligned} 1 &= (\theta + (1 - \theta))^2 \\ &= \theta^2 + 2\theta(1 - \theta) + (1 - \theta)^2 \\ &= \theta^2 + 2\theta\psi(1 - \theta) + 2\theta(1 - \psi)(1 - \theta) + (1 - \theta)^2 \end{aligned}$$

which for $0 < \theta < 1$ and $0 < \psi < 1$ form a statistical model of the probabilities of the four possible outcomes to the takeover gains and losses as

$$\begin{aligned} \text{Pr(Both parties gain)} &= \theta^2 && \text{(Quadrant I)} \\ \text{Pr(Acquirer loses and victim gains)} &= 2\theta\psi(1 - \theta) && \text{(Quadrant II)} \\ \text{Pr(Acquirer gains and victim loses)} &= 2\theta(1 - \psi)(1 - \theta) && \text{(Quadrant III)} \\ \text{Pr(Both parties lose)} &= (1 - \theta)^2 && \text{(Quadrant IV)} \end{aligned}$$

We note that the strength of the Larson-Gonedes model is specified by the parameter θ tending to unity and the extent to which asymmetric information favours the victim is parameterised by ψ . The procedures we follow in estimating such a

probability model are given in Mood, Greybill and Boes (1974, pp. 276-286).

Given that the number of cases where both parties gain (n_{11}), where the acquirer loses and victim gains (n_{12}), the acquirer gains and victim loses (n_{21}) and both parties lose (n_{22}) the Likelihood function is given by

$$L(\theta, \psi) = \{\theta^2\}^{n_{11}} \{2\theta\psi(1 - \theta)\}^{n_{12}} \{2\theta(1 - \psi)(1 - \theta)\}^{n_{21}} \{(1 - \theta)^2\}^{n_{22}} / n_{11}! n_{12}! n_{21}! n_{22}!$$

Given $n = n_{11} + n_{12} + n_{21} + n_{22}$ the Maximum Likelihood estimators for θ and ψ are

$$\theta^* = (2n_{11} + n_{12} + n_{21})/n \text{ and } \psi^* = n_{12}/(n_{12} + n_{21})$$

The success of the fit of these estimators may be tested using a chi-square goodness of fit test. Since there are $k = 4$ outcomes and $m = 2$ estimated parameters the distribution of the test statistic has $(k - m - 1) = 1$ degree of freedom. Small values of the chi-square test statistic indicate a close agreement of the observed counts n_{11}, n_{12}, n_{21} and n_{22} with the expected values based on θ^* and ψ^* .

Given that the parameters θ^* and ψ^* fit the data, the null hypothesis of random outcomes of takeover-gains and losses:

$$H_0: \theta = 1/2, \psi = 1/2$$

may be tested against the Larson-Gonedes model for which the alternative hypothesis is:

$$H_1: \theta > 1/2, \psi \text{ unspecified}$$

The Generalised Likelihood Ratio test is given by

$$\begin{aligned} Q &= -2 \ln(\lambda) = -2[(2n + n_{12} + n_{21}) \ln(2) \\ &\quad + n\theta^* \ln(\theta^*) + n(2 - \theta^*) \ln(1 - \theta^*) \\ &\quad + n_{12} \ln(\psi^*) + n_{21} \ln(1 - \psi^*)] \end{aligned}$$

where Q has an asymptotic chi-square distribution with 2 degrees of freedom.

It might be thought that samples sizes of the order of magnitude used in the paper are insufficiently large. However, a Monte Carlo study of 60,000 repetitions of the sampling distribution of Q for $n = 90$ and $n = 95$ suggests that the nominal size of the test of $H_0: \theta = 1/2, \psi = 1/2$ is slightly overstated but approximated well by the $\chi^2(2)$ limiting distribution as shown in the table

Nominal size	$\chi^2(2)$ critical value	Actual size $n = 90$	Actual size $n = 95$
0.050	5.991	0.052	0.052
0.010	9.210	0.012	0.013

The values of the test statistic Q for the data presented in this article are thus highly significant with p values considerably better than 0.01.

Earnings Response Coefficients and Dividend Policy Parameters

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Abstract—In a seminal paper, Ball and Brown (1968) documented a positive statistical association between earnings surprises and stock returns around an earnings announcement. They concluded that accounting earnings conveyed 'useful' information to the market. However, the question of *how* accounting earnings convey useful information is still being understood. Recent work on this topic has found that current accounting earnings aid investors and analysts in predicting future accounting earnings. Few studies, however, have examined the usefulness of current earnings for predicting other value-relevant attributes. A model by Ohlson (1989a) suggests that investors are also interested in the relationship between current earnings and future dividends. Ohlson's model is supported by empirical tests in this paper which show that the relationship between current earnings and future dividends is significant in explaining cross-sectional variation in earnings response coefficients (ERCs). A second result of interest is that information in dividends substitutes for that in accounting earnings. We find that dividend policy parameters reflect information contained in current earnings. These results add new insights on the information revealed through the analysis of ERCs. Consistent with logic presented here, a symmetrically opposite result is found with respect to dividend response coefficients. The informativeness of earnings (dividends) is found to be negatively (positively) related to the information content of dividends.

Introduction

In a seminal paper, Ball and Brown (1968) documented a positive statistical association between earnings surprises¹ and stock returns around earnings announcements. They concluded that accounting earnings conveyed 'useful' information to the market. However, the question of *how* accounting earnings convey useful information is still being understood. This paper provides evidence that current accounting earnings are useful for predicting one quarter-ahead dividends. Results also show that the usefulness of accounting earnings is mitigated by information contained in current dividends. The contribution of this study to extant literature is described below.

Since Ball and Brown, a voluminous body of research has examined the role of accounting earnings in financial markets. There is strong evidence that accounting earnings aid investors in assessing the future dividend-paying ability of the firm. A widely accepted model (Beaver, 1989) uses three links to describe the relationship between current earnings and future dividend-paying ability. The three links are: (1) a time-series link that relates

current accounting earnings to future earnings; (2) a dividend-earnings link that relates future earnings to future dividends; and (3) a valuation-link that relates stock price to future dividends. These three links imply that current accounting earnings (unexpected earnings) are related to stock price (stock returns). They also imply that the price-earnings (or the returns-unexpected earnings) relation will vary cross-sectionally according to the time-series behaviour of earnings in link (1).

In influential articles, Easton and Zmijewski (1989), Collins and Kothari (1989), and Kormendi and Lipe (1987) test empirically the last implication. They document that the price-earnings relation varies cross-sectionally according to the time-series behaviour of accounting earnings. Specifically, they show that slope coefficients in the price-earnings regression (also called earnings response coefficients or ERCs) are positively related to the time-series parameter of accounting earnings (also called earnings persistence and henceforth β^a). Their finding provides interesting insights on the type of information contained in accounting earnings. It has also paved the way for a large volume of research analysing ERCs.²

In using the time-series of accounting earnings, the authors above assume that future accounting earnings are identical or proportional to future dividends.³ Their reason is for simplicity. It permits them to suppress the dividend-earnings link (link 2

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¹Earnings surprises are defined as actual earnings minus earnings expected by the market. Ball and Brown used the change in earnings and the change in earnings after removing the effect of the change in a market index of earnings as proxies for earnings surprise.

²See Cho and Jung (1991), who survey work in this area.

³Kormendi and Lipe make a weaker assumption. They assume that changes in future accounting earnings are equal to changes in future dividends.

in Beaver's model). However, Ohlson (1989a) demonstrates that this restriction is severe. Ohlson argues that stock prices have been shown, using the well accepted no-arbitrage theory, to depend on future dividends. Restricting accounting earnings to be identical/proportional to dividends in all future periods renders earnings redundant. For accounting earnings to have incremental value over dividends, both these streams must be non-trivially related to each other over time.

Ohlson's logic suggests that the usefulness of current accounting earnings should be gauged by examining its predictive power with respect to both future accounting earnings and future dividends. If current earnings are informative about future dividends and future earnings, then stock price reaction to earnings (ERCs) can be expected to reflect: (1) the relation between current accounting earnings and future accounting earnings, β^a and (2) the relation between current accounting earnings and future dividends (henceforth β^d).⁴

The second hypothesis tested in this study concerns the effect of current dividends on stock price reaction to current earnings. Current dividends are viewed as an alternative source of information.⁵ Literature beginning with Ball and Brown has provided evidence that the information content of an earnings announcement is mitigated by alternative information. Consistent with this idea, we examine whether the information content of earnings (or ERC) decreases as dividends get more 'informative'. The proxy used for informativeness of dividends is the firm's speed of adjustment coefficient (henceforth $-\beta^c$).⁶ Literature supports the view that this parameter is informative about the future prospects of the firm (Lintner, 1956; Fama and Babiak, 1968).

Results show that β^d has incremental power over β^a in explaining variation in ERCs. This finding suggests that the time-series link between current accounting earnings and future dividends is significant in explaining stock price response to accounting earnings. It supports Ohlson who has emphasised the need to study dividends and earnings jointly in accounting. Results also show that dividends mitigate the information content of earnings. We find that there is an inverse relationship between the firm's speed of adjustment coefficient and ERCs. We conclude from this that earnings and dividends are *substitutes*. These results add new insights on information reflected in ERCs.

⁴In the section 'Hypotheses at an Earnings Announcement', later in this paper, β^d is estimated with a regression of current accounting earnings on one quarter-ahead dividends. β^a is estimated using Foster's (1977) model.

⁵Dividends were chosen because prior work has shown that they are an important source of information in capital markets (Aharony and Swary, 1980).

⁶The rationale for the minus sign is explained later in this paper.

In the next set of tests, β^d , β^a and $(-\beta^c)$ are used to explain cross-sectional variation in dividend response coefficients or DRCs. Analogous to ERCs, DRCs are slope coefficients in the price-dividend regression. The logic used with regard to the effects of alternative information implies that earnings can be expected to mitigate the information content of dividends. β^d and β^a are therefore expected to be negatively related to DRCs. $(-\beta^c)$, however, is expected to be positively related to DRCs because as dividends get more informative we should expect a higher stock price reaction. The signs on the β^a , β^d and $(-\beta^c)$ are thus expected to reverse at a dividend announcement. Empirical results support this conjecture. They also alleviate concerns that our findings are being driven by spurious correlations.⁷

The rest of the paper is organised as follows. The next section reviews relevant literature, the third section describes the data used and the fourth and fifth sections describe the hypotheses and test results. The sixth section contains test results on cross-sectional variation in DRCs. Finally, the seventh section concludes the paper.

Literature review

Work by Easton and Zmijewski (1989), Collins and Kothari (1989) and Kormendi and Lipe (1987) is closely related to this study. These authors examine the association between β^a and ERCs. The testing procedure used in their work consists of three steps: (1) the estimation of ERCs for each firm; (2) the estimation of time-series parameters for each firm; and (3) the statistical testing of the association between ERCs and β^a .

ERCs were estimated in these papers in different ways: as a ratio of price at the close of trading on the earnings announcement day to accounting earnings; as a slope coefficient in the levels (and changes) regression of accounting earnings on price; and as a slope coefficient in the regression of unexpected earnings on cumulative abnormal returns around an earnings announcement. Easton and Zmijewski used all of the models above. Results were not sensitive to the estimation methods used. β^a was estimated with Box-Jenkins ARIMA models. For annual earnings, Kormendi and Lipe used an autoregressive model, while Foster's model was used for quarterly earnings by Easton and Zmijewski. They called β^a the earnings persistence.

The association of earnings persistence with ERCs was tested in a variety of ways, from a simple regression (Collins and Kothari) to a random coefficients model (Easton and Zmijewski).

⁷We cannot think of any other reason (except that which supports the hypotheses) that would cause the signs to change at a dividend announcement.

All of these studies concluded that there was a significant positive association between the earnings persistence, β^a and ERCs. In the following section, the data used is described.

Data

Firms were required to be on Compustat and CRSP from which primary EPS before extraordinary items, ordinary cash dividends, earnings announcement dates, dividend announcement dates and share price data were obtained. Data used begins with the 4th quarter of 1977 and ends with the 3rd quarter of 1986 (a total of 36 quarters). A firm must have declared dividends in all these quarters in order to qualify for inclusion in the sample. This criteria was imposed because we wanted to focus on firms that routinely announced dividends. It also provided adequate observations for a firm-by-firm estimation of time-series models in equations (2) and (3). The restriction above also potentially controls for certain aspects of the dividend decision making behaviour of the firm, e.g., regularity of payments and liquidity, that affect information contained in dividends and earnings (Harkins and Walsh, 1971).⁸

Analysts' forecasts for the current quarter were collected from the Value Line Investment Survey. Value Line is an independent agency that provides weekly estimates of earnings for the current and following quarters for approximately 130 stocks. Each week a different set of stocks is covered by the survey. Approximately 13 weeks later Value Line's coverage returns to the same stock. The date on which the forecast is delivered to subscribers of this service is indicated in its publication. Some additional criteria were necessary:

1. Firms must be covered by the Value Line Investment Survey from 1 January 1977 to 31 December 1986.
2. At least 20 quarters of analyst forecast data must be available for each firm. Again, this criterion was applied to ensure the selection of firms for which forecasts were routinely made and for the estimation of the time-series model in equation (1).

Finally, the tests here involve stock price reaction to both earnings and dividend announcements. To separate the announcement effects it was required that dividend and earnings announce-

ments be at least five trading days apart.⁹ This left us with 6,115 observations representing 338 firms.¹⁰

Hypotheses at an earnings announcement

As described in the literature review, testing is carried out in three steps. Here, the model used to estimate ERCs and the models used to estimate the time-series parameters are discussed. This is followed by a discussion of the hypotheses.

Estimation of ERCs

For each firm i , ERCs are estimated using the following model:

$$CAR_{it}^E = \omega_{i0} + \omega_{i1} UE_{it} / P_{it-2} + \epsilon_{it} \quad (1)$$

where,

- CAR_{it}^E is cumulative abnormal stock return over a two-day interval beginning with the day prior to the earnings announcement (day -1) and ending with the announcement (day 0). CAR_{it}^E s were estimated using the market model $R_{it} = \alpha_{0i} + \alpha_{1i} R_{mt} + \epsilon_{it}$, where i subscripts the firm and t the day. The market model was estimated using daily returns from day -361 to day -61 for each earnings announcement (day 0) for each firm i .
- UE_{it} is unexpected accounting earnings for the current quarter, t . Unexpected earnings are computed by subtracting Value Line's most recent forecast of current earnings from actual earnings.
- P_{it-2} is the stock price prevalent two days prior to earnings announcement. A similar deflator was used by Easton and Zmijewski.
- ϵ_{it} 's are residuals of the regression and ω_1 is the ERC to be estimated.

The two-day window used in equation (1) assumes leakage of information in the day preceding the earnings announcement and its complete assimilation by the end of announcement day. The advantage of using a small window is that it increases the likelihood that the computed abnormal returns are due to unexpected earnings, UE . Ideally, UE should also measure earnings surprise experienced by the market in that short window. But because Value Line forecasts are not updated daily, there is a mismatch in the intervals over which CAR and UE are measured. Measurement error in UE , however, would only cause ERCs to be biased downwards (Maddala, 1977). There is no reason to expect that these downward biases will systematically affect test results in favour of the hypotheses.

One way to deal with measurement error in UE

⁸The criteria may have also led to the selection of firms with free cash flow. Breakdown by industry analysis showed that electric utilities have the highest number of firms represented in the sample (about 14%).

⁹Dividends and earnings were adjusted for stock splits and stock dividends.

¹⁰These criteria undoubtedly result in a biased sample. The impact of this bias is discussed in the fifth and sixth sections of this paper.

is to use a long window that aligns the intervals over which CAR and UE are measured. However, a potential problem with using a long window is that it increases the likelihood that the computed abnormal returns are due to other 'non-earnings information'. In the current study (because earnings and dividends are usually announced close to each other) a long window CAR is likely to include informational effects of dividend announcements that precede earnings. The 'contamination' of CAR because of announced dividends would not permit a clean test of the hypothesis that dividends mitigate the information content of earnings. We, therefore, only use a small window.¹¹

Estimation of Time-series Parameters

The second set of models involves estimation of time-series parameters. For each firm i , the following models are estimated:

$$E_{it+1} - E_{it-3} = \gamma_{it} + \beta_i^a(E_{it} - E_{it-4}) + \epsilon_{it} \quad (2)$$

$$D_{it+1} - D_{it} = \gamma_{it} + \beta_i^d E_{it} + \beta_i^c D_{it} + \epsilon_{it} \quad (3)$$

where,

- E and D denote accounting earnings and dividends respectively.
- t subscripts current quarter and i the firm.
- ϵ 's are residuals and the remaining terms are parameters to be estimated.

Equation (2) due to Foster (1977) uses accounting earnings to estimate the earnings persistence, β^a . The change in current earnings is used to predict the change in the next quarter's earnings. A four period differencing is used to control for seasonality in accounting earnings. Consistent with Easton and Zmijewski, β^a is expected to be positive and significant. It can be seen from equation (2) that as β^a increases (*all else constant*), the next quarter's earnings also increase. β^a therefore proxies for 'informativeness' of current earnings with respect to future earnings.

Equation (3) is a widely used dividend policy model. Lintner (1956) and Fama and Babiak (1968) have argued that firms will first determine the amount of dividends that should be targeted for distribution, D^* (using their target payout ratios, r^* and profits) and then will *partially adjust* actual dividends in each period towards their targeted amount. The partial adjustment model used by these authors is:

$$D_{it+1} - D_{it} = c_i(D_{it+1}^* - D_{it}) \quad (4)$$

c_i measures the speed with which firm i adjusts towards the targeted level and is called

appropriately 'the speed-of-adjustment coefficient'. Lintner argues that the parameters c and r^* are set by firms in a manner that reflects the firm's expectation of its future earnings power or dividend-paying capability. Choe (1990) also finds that c and r^* are positively related to future earnings prospects. Since the targeted amount of dividends is not observed, empirical estimates of c and r^* cannot be obtained directly. However, Fama and Babiak show that these parameters can be estimated with a regression of current levels of earnings and dividends on the next period's dividend change.¹² It is this form that we use in equation (3).

Fama and Babiak have found that current accounting earnings are significantly related to next period's dividend change. Their work suggests that β^d will be positive and significant. It can be seen from equation (3) that as β^d increases (*all else constant*), the next quarter's dividend also increases. β^d therefore proxies for 'informativeness' of current earnings with respect to future dividends. β^c describes the magnitude of association between current dividends and the quarter-ahead dividend change. Consistent with Fama and Babiak, β^c is expected to be negative. That is, as the level of current dividends, D_{it} , increases it is expected that the next quarter's dividend change will decrease. This is because (*all else constant*) a firm with a high level of current dividends will only need to make a small adjustment to meet its targeted dividend.¹³ It can be seen from equation (3) that as $(-\beta^c)$ increases (*all else constant*), the next quarter's dividend also increases. $(-\beta^c)$ is therefore expected to be positively related to the information content of current dividends. Alternatively, $(-\beta^c)$ can be viewed as an empirical proxy for the firm's speed of adjustment coefficient, c .¹⁴ Firms that adjust their current dividends towards the targeted amounts with a higher speed (higher c) signal that they have higher future dividend paying ability (Lintner). The information content

¹²The logic used is to 'replace' targeted dividends with earnings because the two are assumed to be linked via a payout ratio.

¹³Consider two firms with identical amounts of targeted dividends, D_{it+1}^* . Equation (4) shows that the firm with a higher level of current dividends, D_{it} , will have smaller targeted change, $(D_{it+1}^* - D_{it})$ and consequently, a smaller actual dividend change in period $t+1$.

¹⁴Fama and Babiak formally show that $(-\beta^c) = c_i$. This equality is because β^d obtained using a regression of D_{it} on the actual dividend change in equation (3) is an empirical proxy for $(-c_i)$, which also describes the relation between D_{it} (on the right hand side) and the actual dividend change (the left hand side variable) in equation (4). Fama and Babiak also show that $\beta^d = r^* \lambda_i (1 - c_i)$, where λ is the rate of growth of earnings and all other symbols are as previously defined.

¹¹In addition, it was required that dividends and earnings be at least five trading days apart (see subsection 'Data').

Table 1
Estimation of Earnings Response Coefficients (ERCs)

$$CAR_{it} = \omega_0 + \omega_1 UE_{it}/P_{it-2} + \epsilon_{it}$$

Coefficients	Quantiles			Mean	t-value for mean
	5th	50th	95th		
ω_0	-0.01	-0.00	0.02	-0.00	-0.90
ω_1	-0.73	0.18	2.32	0.43	7.14

Notes:

- CAR_{it}^E is cumulative abnormal stock return over a two-day interval around the earnings announcement.
- UE_{it} is unexpected accounting earnings for the current quarter, t . Unexpected earnings are computed by subtracting Value-Line's most recent forecast of current earnings from actual earnings.
- P_{it-2} is stock price prevalent two days prior to earnings announcement.
- ϵ_{it} 's are residuals of the regression.
- ω_1 is the ERC to be estimated.

of dividends is therefore expected to be larger for these firms.¹⁵

There are some specification issues concerning equations (2) and (3) that are unique to this paper. First, it is possible that the forecasting models in equations (2) and (3) are asymmetric with respect to specification so that one is better specified than the other. Parameter estimates in one model might therefore contain less measurement error. Second, in equation (3) E_{it} and D_{it} are likely to be collinear, presenting a potential problem in assessing the incremental information content of β^c and β^d . Note, however, that the hypotheses predict a reversal in signs on the coefficients as we move from an earnings to a dividend announcement. Model misspecification and multicollinearity, while causing measurement error, should not lead to such a reversal. Test results that confirm the hypotheses will therefore be valid notwithstanding these specification problems. We also gauged the severity of misspecification by testing for sensitivity of the empirical tests to alternative specifications with no change in results.¹⁶

Hypotheses

The hypotheses are tested with variations of the following model:

¹⁵The theoretical value of β^c is less than zero. Its estimated value, however, can be greater than zero. When used in the regression in equation (5), a positive β^c would mean that it has less information content than a negative β^c .

¹⁶We estimated variations of equations (2) and (3). For instance, equation (3) was estimated (with and without an intercept) in the changes as: $D_{it+1} - D_{it-3} = \beta^1(E_{it} - E_{it-4}) + \beta^2(D_{it} - D_{it-4}) + \epsilon_{it}$. In support of the hypotheses, results show a positive (negative) relationship between β^1 (β^2) and the ERCs. Results were also unchanged when the term $(D_{it} - D_{it-4})$ was included in equation (2). If the correlation between E_{it} and D_{it} is not constant over time, estimation in the changes will alleviate the multicollinearity problem (Maddala, 1977).

$$\omega_{it} = \mu_0 + \mu_1 \beta_i^a + \mu_2 \beta_i^d + \mu_3(-\beta_i^c) + \epsilon_a \quad (5)$$

where:

- ω_{it} 's are ERCs obtained from equation (1).
- β_i^a , β_i^d and β_i^c are coefficients from equations (2) and (3).
- μ 's are coefficients to be estimated.

Consistent with prior work, the earnings response coefficient is expected to be positively related to earnings persistence, β^a . β^d is also predicted to be positively related because it is expected to provide incremental explanatory power via its links to future dividends. Finally, $(-\beta^c)$, which proxies for informativeness of dividends, is expected to mitigate the information content of an earnings announcement. We therefore expect to find $\mu_1 > 0$, $\mu_2 > 0$ and $\mu_3 < 0$.

An interesting 'null' hypothesis is that the dividend policy parameters have no effect on ERCs.¹⁷ This is to be expected if dividends are *irrelevant* for conveying information about firm value. Of particular interest is a model by Ohlson (1989b). He provides an economic interpretation of the accounting equation that change in book value plus net dividends equals earnings. Dividends are viewed as a critical link in the equation above because they help identify earnings using book value. But the model also restricts the role of dividends because it invokes Miller and Modigliani's (1961) concepts on dividend irrelevancy. Using these concepts, Ohlson (1989b) explicitly derives the proposition that ERCs are *not* affected by dividend policy parameters.¹⁸ Our

¹⁷We wish to point out that we are not testing the role of *all* dividend policies. For example, firms with a policy of paying no dividends are excluded.

¹⁸Ohlson (p. 11) assumes the following information dynamics for dividends: $D_{t+1} = \theta_{31}E_t + \theta_{33}D_t$. The dividend policy parameters, θ_{31} and θ_{33} , are then shown to be independent of the ERC.

Table 2
Estimation of Time-series Determinants

A

$$E_{it+1} - E_{it-3} = \gamma_{it} + \beta_i^a (E_{it} - E_{it-4}) + \epsilon_{it}$$

Coefficients	Quantiles			Mean	t-value for mean
	5th	50th	95th		
γ_{it}	-0.17	0.03	0.12	0.00	0.77
β_i^a	-0.07	0.32	0.74	0.33	22.83

B

$$D_{it+1} - D_{it} = \gamma_{it} + \beta_i^d E_{it} + \beta_i^c D_{it} + \epsilon_{it}$$

Coefficients	Quantiles			Mean	t-value for mean
	5th	50th	95th		
γ_{it}	0.00	0.04	0.26	0.07	15.44
β_i^d	-0.07	0.01	0.10	0.01	2.64
β_i^c	-0.79	-0.19	0.02	-0.26	-19.03

Notes:

- E and D denote accounting earnings and dividends respectively.
- t subscripts current quarter and i the firm.
- ϵ 's are residuals.
- β^a is the earnings persistence to be estimated.
- β^d and β^c are dividend policy parameters to be estimated.

tests will distinguish between these opposing predictions.

Results

Earnings Response Coefficients

Table 1 shows the distributional characteristics of parameters from the ERC regression. Consistent with Easton and Zmijewski, it is assumed that the intercept term captures the impact of omitted variables. Table 1 shows that the mean (and median) intercept, ω_0 , is close to zero in magnitude and is statistically insignificant, suggesting that the impact of omitted variables is not serious. The hypothesis that the mean ERC = 0 is rejected. This result supports Ball and Brown's finding that accounting earnings have information content. About 81% of ERCs were positive.¹⁹ Table 1 shows that ERCs exhibit considerable cross-sectional variation.²⁰ Magnitudes of these ERCs, however, are smaller than those found by Easton

and Zmijewski. This could be in part due to the sampling criteria, which required firms to have paid dividends in all the quarters. It is possible that for these firms dividends potentially mitigate the information content of earnings to a greater extent, resulting in lower ERCs.²¹

Time-series Parameters

Table 2A presents the distributional characteristics of parameters from Foster's model. The mean (and median) intercept, γ_1 , is small in magnitude and the hypothesis that the mean intercept equals 0 cannot be rejected. This again suggests that omitted variables do not play a significant role. The mean and median earnings persistence, β^a , are similar in magnitude. Results suggest that a \$1 shock in accounting earnings leads to a revision of only about 33 cents in the next quarter's earnings. This indicates that there are transitory elements in current earnings. Consistent with prior work the hypothesis that the mean $\beta^a = 0$ is rejected.

Table 2B presents the distributional characteristics of parameters from equation (3). Here, the hypothesis that the mean intercept is 0 is rejected, suggesting the presence of omitted variables. Consistent with Fama and Babiak, the mean (and median) β^d are positive while the mean (and median) β^c are negative. The separate hypotheses that the mean $\beta^d = 0$ and the mean $\beta^c = 0$ are also rejected. The former result confirms that current

¹⁹74% of these were statistically significant. A larger number of positive coefficients might have been documented were it not for measurement error in UE (see 'Estimation of ERCs'). This makes the statistical test on individual coefficients less meaningful. Further, small sample sizes also make these tests 'weak'. Recall that we use the entire distribution of ERCs because the downward bias is not expected to be systematically related to the hypotheses. The hypotheses were also tested using only positive ERCs. Results were qualitatively similar.

²⁰Comparison of the mean and median ERC indicates some skewness. Truncations of 1% and 5% at the tails of the ERCs' distribution, however, yielded qualitatively similar results.

²¹While the criteria of requiring firms to have continuous dividend payments appears restrictive, we note that prominent Fortune 500 firms are represented in the sample.

Table 3
The Association of ERCs with Time-series Determinants

A

$$\text{Model: } \omega_{it} = \mu_0 + \mu_1 \cdot \beta_i^a + \epsilon_i$$

	Independent variables		Adj. R^2
	Intercept	β^a	
Est. Coef.	0.18	0.76	0.03
t-Statistic	1.93	3.34	

B

$$\text{Model: } \omega_{it} = \mu_0 + \mu_1 \cdot \beta_i^a + \mu_2 \cdot \beta_i^d + \mu_3 \cdot (-\beta_i^c) + \epsilon_i$$

	Independent variables				Adj. R^2
	Intercept	β^a	β^d	$(-\beta^c)$	
Est. Coef.	0.29	0.74	2.98	-0.50	0.05
t-Statistic	2.62	3.28	2.98	-1.97	

Notes:

- ω_{it} 's are ERCs obtained from Table 1.
- β_i^a , β_i^d and β_i^c are coefficients from Tables 2A and 2B.
- μ 's are coefficients to be estimated.

earnings are significantly related to future dividend change, while the latter provides evidence in support of Lintner's partial adjustment dividend model. The next section tests whether $(-\beta^c)$ and β^d have incremental explanatory power over the earnings persistence, β^a .

Hypotheses

Table 3A replicates prior work with a regression of earnings persistence, β^a , on ERCs. We also confirm that the coefficient on β^a is positive and statistically significant. This suggests that the time-series parameter of accounting earnings explains significant cross-sectional variation in stock price sensitivity to earnings. In Table 3B, the parameters β^d and β^c are also included in the cross-sectional ERC regression.²² Results show that β^d and β^c have incremental power in explaining ERCs. Further, as expected, the coefficient on β^d is positive and that on $(-\beta^c)$ is negative. These results suggest that: (1) the link between current earnings and future dividends is incrementally useful in explaining stock price reaction to earnings; and (2) information in current dividends mitigates the information content of earnings announcements. With the inclusion of β^d and β^c , a modest increase in the adjusted R^2 's from 3% to 5% is observed.²³

²²The Pearson correlations between β^a , β^d and $(-\beta^c)$ were in general not large: $\text{corr}(\beta_i^a, \beta_i^d) = 0.06$ (p-value = 0.25), $\text{corr}(\beta_i^a, -\beta_i^c) = 0.05$ (p-value = 0.34), and $\text{corr}(\beta_i^d, -\beta_i^c) = 0.35$ (p-value = 0.0001).

²³Typical R^2 's in this area of research are about 2% to 5% (Cho and Jung, 1991). That the adjusted R^2 's increase despite potential problems in using estimates is also viewed as evidence in support of our hypotheses.

Hypotheses at a dividend announcement

If dividends mitigate the information content of earnings, the reverse might also be expected to be true. In addition, DRCs are expected to increase as dividends get more informative. The hypotheses associated with DRCs therefore predict that the signs on β^a , β^d and $(-\beta^c)$ will be reversed.

Estimation of DRCs

For each firm i , DRCs are estimated using the following regression:

$$CAR_{it}^D = \theta_0 + \theta_1 UD_{it}/P_{it-2} + \epsilon_{it} \quad (6)$$

- CAR_{it}^D is cumulative abnormal stock return in the two days (day -1 and day 0) around the dividend announcement. CAR_{it}^D 's are estimated using the market model, $R_{it} = \alpha_{0i} + \alpha_{1i}R_{mt} + \epsilon_{it}$, where i subscripts the firm and t the day. The market model was estimated using daily returns from day -361 to day -61 for each dividend announcement (day 0) for each firm i .
- UD_{it} is the quarterly change in dividends used to proxy for unexpected dividend.
- P_{it-2} is the stock price prevalent two days prior to the dividend announcement.
- ϵ is the residual term and θ_1 's are the DRCs to be estimated.

Hypotheses

The hypotheses are tested with the following regression:

$$\theta_{1i} = \delta_0 + \delta_1 \beta_i^a + \delta_2 \beta_i^d + \delta_3 (-\beta_i^c) + \epsilon_b \quad (7)$$

where,

- θ_1 's are DRCs obtained from (6).
- β_i^a , β_i^d and β_i^c are coefficients from equations (2) and (3).
- δ 's are parameters to be estimated.

Signs on the δ 's are expected to be the opposite of those in the ERC regression (equation 4). That is, it is expected that $\delta_1 < 0$, $\delta_2 < 0$ and $\delta_3 > 0$.

Results

Table 4 shows the distributional characteristics of parameters from equation (6). The mean (and median) intercept is small in magnitude and is marginally significant. The hypotheses that the mean DRC is different from zero is rejected at the 0.05 level. The distribution of DRCs, however, is positively skewed and results have to be interpreted with some caution.

Table 5 shows that the earnings persistence, β^a , is negatively related to DRCs. Its association is significant at the 0.01 level. It suggests that as earnings get more informative, stock price sensitivity to dividends decreases. The hypothesis that earnings and dividends are substitute sources of information is therefore supported. The speed of

Table 4
Estimation of Dividend Response Coefficients (DRCs)

$$CAR_{it} = \theta_0 + \theta_1 UD_{it}/P_{it-2} + \epsilon_{it}$$

Coefficients	Quantiles			Mean	t-value for mean
	5th	50th	95th		
θ_0	-0.01	-0.00	0.01	-0.04	-1.64
θ_1	-0.14	0.03	0.26	0.21	1.72

Notes:

- CAR_{it}^p is cumulative abnormal stock return in the two days (day -1 and day 0) around the dividend announcement.
- UD_{it} is the quarterly change in dividends that is used to proxy for unexpected dividend.
- P_{it-2} is the stock price prevalent two days prior to the dividend announcement.
- ϵ is the residual term.
- θ_1 's are the DRCs to be estimated.

adjustment coefficient, $(-\beta^c)$, is positively related to DRCs, suggesting that as dividends get more informative, stock price reaction to dividends increases. The coefficient on $(-\beta^c)$ is significant at the 0.05 level. The coefficient on β^d is, however, not significantly related to DRCs.

We provide a possible explanation for the weaker results associated with the DRC regression. Dividends are known to play many different roles in capital markets. The sampling criteria of choosing firms with continuous dividends may have, for example, resulted in the selection of firms with 'free cash flow'. Stock prices are predicted to respond positively to the payment of dividends in these firms (Jensen, 1986). Because DRCs vary cross-sectionally because of 'other' reasons, they are a noisier measure of information content. A weaker association between DRCs and the β parameters is therefore to be expected. This makes the pattern of sign reversals on the coefficients an impressive result.

Conclusion

Since Ball and Brown (1968), numerous studies have shown that current earnings are useful for predicting future earnings. Few studies, however, have investigated the usefulness of current earnings as a predictor of other variables of interest to investors. Ohlson (1989a) demonstrates that current earnings are incrementally useful for predicting future dividends. In support of this hypothesis, we find that the relation between current earnings and one-quarter ahead dividends is significant in explaining cross-sectional variation in ERCs. This result supports Ohlson, who has emphasised the importance of the dividend-earnings interaction for accounting research. Both future dividends and future earnings could be used, for instance, to estimate what literature has termed the 'persistence' of accounting earnings. The joint modelling of dividends and earnings to derive a single measure of persistence is a challenging task for accounting research.

The second finding of interest here is that information in dividends substitutes for that in

Table 5
The Association of DRCs with Time-series Determinants

$$\text{Model: } \theta_{it} = \delta_0 + \delta_1 \cdot \beta_i^a + \delta_2 \cdot \beta_i^d + \delta_3 \cdot (-\beta_i^c) + \epsilon_i$$

	Independent variables				Adj. R^2
	Intercept	β^a	β^d	$(-\beta^c)$	
Est. Coef.	0.44	-1.39	1.60	0.82	0.03
t-Statistic	1.89	-2.96	0.77	1.57	

Notes:

- θ_1 's are DRCs obtained from Table 4.
- β_i^a , β_i^d and β_i^c are coefficients from Tables 2A and 2B.
- δ 's are parameters to be estimated.

accounting earnings. The idea that alternative information preempts information in earnings announcements is not new. The result here, however, is more specific. It suggests that dividend policy parameters reflect information contained in current earnings. Research is needed on the kind/type of information in current earnings that is *substituted* for by dividend policy parameters. This can help identify redundant pieces of information for elimination from financial reports. These are new insights gained through the analysis of earnings response coefficients.

Consistent with logic presented here, a symmetrically opposite result is found with respect to dividend response coefficients. The informativeness of earnings (dividends) is found to be negatively (positively) related to the information content of dividends. While results on DRCs are weak, we view the reversal of signs on two of the coefficients as strong evidence in support of the hypotheses.

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The Working of the Auditing Practices Committee—Three Case Studies

Christopher Pong and Geoffrey Whittington*

Abstract—This is a study of the development of three different auditing guidelines by the Auditing Practices Committee (APC) of the UK and the Irish Republic. The guidelines are those on analytical review, fraud, and general insurance business. The evidence is derived from the APC's archives and includes agendas, minutes, working papers and correspondence of working parties and of the main Committee, in addition to published sources. The evidence is used to assess the validity of the public criticisms that have been made of the APC and the possible effectiveness of the recent reforms of the system.

Introduction

The object of this paper is to report the results of case studies of the development of three guidelines by the Auditing Practices Committee (APC) of the UK and the Irish Republic. The research is based on our examination of the APC's archives, and this determines the focus of the paper. The case studies are considered in the context of the criticisms that were made of the APC, leading to its subsequent replacement by the Auditing Practices Board (APB) in 1991. In the concluding section, we assess the validity of the criticisms and the likely effectiveness of the new body.

Historical background

The APC was set up in 1976 by the Consultative Committee of Accountancy Bodies (CCAB), which is a joint venture of the six leading professional accountancy bodies in the UK and the Republic of Ireland. Its primary object was 'to advance standards of auditing and associated review activities and to provide a framework of practice for the exercise of an auditor's individual judgment'.¹ It was a committee of a private sector body that

relied for its authority on the discipline of the constituent professional bodies: as a result of this, every standard or guideline it issued had to be approved individually by each of the six professional bodies. Members of the APC were part-time and unpaid for their services. The voting members were all professionally qualified accountants, and the greater proportion of these were in public practice. In 1990 there were 17 voting members, supported by a full-time secretariat of three professional staff. There were, additionally, seven non-voting members (added in the later years) representing outside interests (two from government departments, two from large business firms, a lawyer, an academic and a management accountant).

The APC originated in 1976 as a replacement for the Auditing Practices Committee (1973–6), a technical committee of the Institute of Chartered Accountants in England and Wales (ICAEW). This earlier committee had responsibility for issuing professional guidance on auditing matters to members of the ICAEW, which is the predominant body (in terms of numbers) in audit practice in the British Isles as a whole, although the Irish and Scottish institutes predominate in their respective geographical territories. The weight of numbers of the ICAEW was reflected in its participation in the membership of the new APC and its working parties, and this may have been encouraged by the fact that the offices of the APC were within the ICAEW headquarters at Moorgate Place, London. Moreover, participation in the APC's affairs was not evenly distributed between members of the APC. Members in public practice were, understandably, the most active, and amongst these, members of larger international auditing firms predominated, with medium-sized firms making a lesser contribution and small practitioners making the least contribution either as members of the APC and its working parties or as commentators

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¹*Auditing and Reporting*, 1990/91, p. 1.4.

on exposure drafts. Thus, the predominant perspective of the APC's membership was that of the larger audit firm, concerned with large audit clients. The motivation for the formation of the APC probably also had a large firm orientation, insofar as it was concerned with the damage to the public image of auditors caused by audit failures that were large enough to attract public attention. The problems of the early 1970s—the oil price rise, high rates of inflation, business collapses, the secondary banking crisis and Department of Trade inspectors' comments about auditors—undoubtedly created a feeling of crisis that helped to provoke the CCAB to set up the APC in March 1976 (Stacy, 1986).

During its lifetime, which extended from 1976 to 1991, the APC issued only three standards, one of which (*Qualifications in Audit Reports*) was incorporated in another (*The Audit Report*) in 1989. The two standards that remained in place were *The Auditor's Operational Standard* (issued 1980), which comprises seven brief paragraphs (of one sentence each) defining the elements of the audit process, and *The Audit Report* (issued 1980 and revised in 1989), giving detailed guidance on the form and content of the audit report. The standards took the form of professional requirements. They were supplemented by auditing guidelines, 35 of which were in issue in July 1990. These are advisory rather than obligatory, although departure from them might require justification. They deal with detailed operational aspects of auditing and with the special problems of auditing particular types of organisation.²

Towards the end of the APC's life, it became the subject of public criticism in Parliament and elsewhere, notably by Austin Mitchell MP (Mitchell, 1990) and by academics such as Prem Sikka (Sikka, Willmott and Lowe, 1989). The gist of these criticisms was that the APC was controlled by the accounting profession (particularly the large practising firms) and was regulating auditing in the interest of the profession rather than the wider public. Particular attention was drawn to the apparent secrecy surrounding the APC's proceedings and the lack of non-accountant members. Such criticisms were given greater public attention as a result of a series of business failures, notably those of Polly Peck and the Levitt Group, in which allegations were made of possible audit failures.³ Another pressure to reconsider the working of the

APC was the 1989 Companies Act which, in implementing the EC Eighth Directive, dealt with the regulation of auditors. Also, individual APC members had formed views as to how the Committee might be reformed to enable it to fulfil its functions more effectively. As a result of such pressures, the APC at its 1989 conference decided that reform was needed and, as a result, in October 1990 a report on the working of the APC, with proposals for its re-structuring, was presented to the CCAB by the current APC chairman (Ian Brindle, now senior partner of Price Waterhouse in the UK) and his immediate predecessor (David Tweedie, then of KPMG Peat Marwick McLintock and now chairman of the Accounting Standards Board).

The Brindle/Tweedie proposals and the creation of the APB

The Brindle/Tweedie proposals were intended to counter the public criticisms of the APC and to adapt the APC to meet the needs of the new regulatory environment. The proposals focused on four areas, membership, resources, authority and public accountability.

With regard to *membership*, it was proposed to give votes to the 'outside' members who were not representatives of CCAB member bodies. It was also suggested that the Committee be smaller (ideally 14 members, nine representing CCAB member bodies and five 'outside' members), and that the members give a significant commitment of time. Concern was expressed about the need to attract and retain members of high quality, and it was suggested that there should be no fixed limitation on the length of service. Appointment should be by a selection committee consisting of presidents of CCAB member bodies and representatives of interested outside bodies, such as the Bank of England.

With regard to *resources*, it was proposed that the budget be increased to allow the appointment of at least two additional professional staff (there being only three at that time) to service the Committee's work.

With regard to *authority*, it was suggested that the APC should be allowed to issue standards on its own authority, without the approval of CCAB member bodies, although it should conduct a proper consultation process that would enable these institutes to express their views.

With regard to *public accountability*, it was proposed that the APC should make its agenda papers available to non-members for a modest payment. Also, the possibility of public attendance at meetings should be explored.

In January 1991, the CCAB issued a press release containing its own proposals for an Auditing Practices Board (APB). Apart from the new

²Further information on the history of the APC, its procedures, and the content of its standards and guidelines will be found in *Auditing and Reporting 1990/91* (ICAEW, 1990) and in *APC: the First Ten Years* (APC, 1986).

³Evidence of the APC's sensitivity to public comment is the fact that the APC secretariat carried out a continuous survey of newspaper comment on the auditing profession, and the secretary would inform APC members of any comment he considered to be important.

title, the proposals closely resembled the Brindle/Tweedie proposals for reforming the APC. The main change was with regard to membership. In one respect, the CCAB was more radical than Brindle/Tweedie: it proposed an equal balance between auditing practitioners and other voting members, thus ensuring that it could not be claimed that the new committee was dominated by auditors. On the other hand, the CCAB did not accept the Brindle/Tweedie proposal for a smaller committee: it proposed 18 voting members whereas Brindle and Tweedie envisaged that their smaller committee would be more efficient and quicker in dealing with its business. The Brindle/Tweedie proposals on resources and public accountability were adopted.

After considering public comments, the CCAB implemented its proposals at the end of March 1991, when the APC was replaced by the new APB. The new APB was effectively the reconstituted APC proposed by Brindle and Tweedie, except that it was a larger committee than they envisaged: 22 members including the non-voting members (government representatives and the secretary).

The criticisms these reforms were designed to meet (as suggested in the Brindle/Tweedie paper) were:

(1) *Slow speed of action.* The APC had been slow to act on some issues, because of lack of secretarial resources, lack of commitment of time by members, and the need to obtain approval by CCAB constituent member bodies.

(2) *Inadequate quality of work.* Although Brindle and Tweedie do not mention this explicitly, there was clearly some anxiety that the APC's slowness may have been due partly to its difficulty in producing work of a quality that would command respect. This is implicit in their anxieties about attracting members of sufficient calibre and commitment (e.g. inquorate meetings of the APC apparently occurred), and their call for more secretarial support.

(3) *Lack of independence and consultation.* The charge that the APC was dominated by auditors, and particularly large professional firms, was made explicitly in the public criticisms of the APC (Mitchell, 1990), and was clearly also likely to concern regulatory authorities such as the Department of Trade and Industry. This was dealt with in the new APB regime by the revised balance of voting membership and by the removal of the veto formerly exercised by CCAB member bodies.

(4) *Secrecy.* This charge was particularly made in the public debate (Mitchell, 1990 and Sikka, Willmott and Lowe, 1989) and was dealt with by the proposals for public availability of agenda papers and possible public meetings. This issue is really an extension of the problem of independence: secrecy may give scope for overtly self-interested behaviour and may give the impression that

such behaviour occurs even when it does not. Thus, secrecy encourages conspiracy theories about the standard-setting process.

The case studies

Our case studies are intended to assess the validity of the above criticisms of the APC and also to provide evidence as to whether the new APB is likely to avoid any problems encountered by its predecessor. We have chosen to examine the development of three auditing guidelines. The first, on analytical review, relates to a technical auditing issue. The second, on fraud and other irregularities, deals with an issue that is clearly in the public arena and subject to much criticism and debate. The third, on the audit of insurance companies, deals with an issue of particular concern to a commercial group outside the auditing profession. Thus, the three case studies should enable us to observe the APC dealing, respectively, with an issue mainly of interest within the auditing profession, an issue involving wide public interest, and an issue involving a narrower, but possibly more clearly focused, interest group.

Our method of developing the case studies has been to read and abstract all the APC's records of the development of each guideline, including papers of working parties as well as agendas, papers, minutes and correspondence relating to the work of the main Committee. These include the submissions made to the APC by outside bodies as a result of public exposure: the effectiveness of public exposure is an important test of whether the APC was really concerned with wider interests than those of the professional auditor.

With regard to the assessment of the specific criticisms, the first uses a criterion, speed of action, that is easy to measure (in years and months), although what is a desirable speed is a matter of judgment. The second criticism relates to quality. Here, we shall use three related criteria which are inevitably subjective. First, we consider the extent to which the relevant guideline defined standard practice more precisely. Second, we consider the internal consistency and clarity of exposition of the guideline as a technical document. Third, we consider the extent to which the guideline made an original contribution, as opposed to simply describing current practice or copying guidelines issued in other countries or by international bodies. Not only are these criteria difficult to assess, but also their merits are controversial: for example, some might regard originality as a virtue whereas others might regard conformity with tradition and with practice elsewhere as a preferable strategy. The third criticism relates to lack of independence and public consultation. We can observe the extent to which the APC followed a due process of consultation and the extent to which it was subject to

formal lobbying and other pressures from its constituents (such as the use of professional bodies' veto powers). We cannot observe informal lobbying and pressure that would not be recorded in the archives, and, above all, we cannot assess the importance of the influence of the shared professional training and experience of APC members, the fact of which has been noted above. With regard to the final criticism, of secrecy, the fact that the archives were not publicly available indicates that the ASC did operate under conditions of substantial secrecy. What our study can hope to show is whether these 'secret' papers did in fact hide anything that would have been considered important to the public or embarrassing to the APC.

Analytical review

In the words of the draft guideline (publicly exposed in 1986): "Analytical review" is defined

as audit procedures which systematically analyse and compare related figures, trends, ratios and other data with the aim of providing evidence to support the audit opinion on the financial statements.' It is therefore concerned with the technical procedures used by auditors and should not be of special interest to the wider public or to any particular interest group outside the auditing profession.

Analytical review was developed as an audit approach by the larger audit firms, particularly in the US. When the APC began work on the topic, there was already an International Auditing Standard (IAG 12) and the APC working party drew on this. Thus, analytical review provides an example of how the APC could serve as a vehicle for spreading and legitimising new auditing methods developed by large international firms. The topic was originally brought to the APC's attention by research done by Christopher West-

Table 1
Summary of the Guideline Setting Process: Analytical Review

	<i>Date</i>	<i>No. of months</i>	<i>No. of working party meetings*</i>
1. Working party formation	3/83		
—considering background material			
—preparing a point outline of proposed guideline for APC approval		16	4
—preparing a draft for APC consideration			
2. Submitting a draft to APC	7/84		
—considering recommendations from APC			
—re-drafting guideline			
—submitting revised draft to APC for approval for sending to technical committees		8	—
3. Internal exposure	3/85		
—waiting for comments from CCAB member bodies		1	—
4. Summarising the comments	4/85		
—discussing the comments and revising draft		15	2
5. Submitting to APC for further comments	7/86		
—incorporating comments from APC			
—submitting to APC for approval for issuing exposure draft		5	—
6. Public exposure	12/86		
—waiting comments from public		4	—
7. Summarising comments received	4/87		
—considering comments and revising draft		6	1
8. Submitting to APC for further comments	10/87		
—incorporating comments from APC			
—submitting final draft to APC for issuing the guideline		2	—
9. Submitting to CCAB member bodies for approval	12/87		
		3	—
10. Approval received	3/88		
		1	—
11. Issuing the guideline	4/88		
		<u>61</u> months	<u>7</u> meetings

*No. of working party meetings observable in working papers. There may have been other unrecorded or informal meetings.

wick (1981), sponsored by the ICAEW. Westwick's work was submitted to the APC in draft form in 1980 and reviewed by two members of the APC who recommended that the topic be made a matter for further research rather than immediate action. In 1983, analytical review became a topic for action on the APC agenda. A working party of four members was set up, supported by a secretary from the APC's professional staff. Three of the members were members of auditing firms and one was a representative of the Audit Commission. This balance remained the same throughout the life of the working party, although the personnel changed.

The working party was formed in March 1983 and the auditing guideline was finally issued in April 1988, five years and one month later. The processes that were gone through are summarised in Table 1.

This shows that the standard APC due process⁴ was followed. The working party submitted a draft to the APC which revised it and exposed it internally to CCAB constituent bodies. The working party then considered comments, revised the draft and submitted it to the APC, which, after suggesting further amendments, approved a draft for public exposure. Following public exposure, the working party carried out further revisions, submitted these to the APC, and prepared a final draft in the light of the APC's comments. The APC submitted the final draft to CCAB constituent bodies for final approval.

Rather than describe the evidence in detail, we offer the following conclusions with respect to the four criticisms raised earlier:

(1) *Slow speed of action.* In this case, the APC took over five years to develop a guideline on a relatively uncontroversial issue, and it had previously taken three years to initiate action. Table 1 highlights the stages of this relatively slow progress. The working party itself encountered difficulties in arranging meetings because of the other commitments of busy, unpaid part-time members. Moreover, only the chairman lasted the full course of the working party: all the others, including the secretary, left at some stage and had to be replaced, which must have led to a degree of disruption and repetition of the learning process. There was also a degree of disagreement among working party members which inevitably caused delay, although a degree of discussion and dissent may be thought to be a healthy sign.

However, the delays in the process were not entirely due to the working party: the APC met only once a month, at most, and there was not always space on the agenda to give immediate consideration to analytical review. Moreover, the APC's comments at each stage led to more revision

work for the working party and some of these revisions were extensive. Indeed, much of the delay was because of the complexity of the process. Five years sounds a long time in which to develop an auditing guideline, but Table 1 identifies 10 separate stages that were gone through in that time.

Finally, it should be noted that the need to obtain final approval from the CCAB constituent bodies took three months. Abolition of this stage would thus have led to a prompter issue of the final guideline, but the saving of time would not have been large relative to that taken by the rest of the process: the internal exposure stage took much longer.

(2) *Quality of work.* The guideline on analytical review was the result of developments already taking place in the accounting profession. Several commentators, notably those from large auditing firms, referred to the exposure draft as lacking in depth and comparing unfavourably with the internal audit manuals of large audit firms, and with the US standard on the subject. For example, Price Waterhouse considered the draft was generalised and insubstantial, and Deloitte, Haskins & Sells commented that it did not provide sufficient guidance either on the circumstances in which analytical review might be used in obtaining evidence, or on the level of assurance that it was capable of providing. As the final guideline did not go into significantly greater depth than the exposure draft, it is reasonable to assume that the same criticisms would apply to it. It is also possible to argue that the guideline did not add a great deal to the existing international standard. An audit brief amplifying the guidance was suggested at various stages in the discussions but never appeared. Thus, it appears that the APC was merely describing and rationalising current developments in a fairly general way, rather than leading them or providing detailed guidance. In some significant respects, the original proposals of the working party were moderated, in the light of comments from the APC or from exposure, e.g. the original draft referred to analytical review as a value for money technique and emphasised the need for analytical review to be a continuing process, starting at an early stage of the audit. Both these aspects of the guideline had been removed in the exposure draft and one member of the working party expressed strong dissatisfaction with these changes. This suggests that the fairly elaborate consultation process, involving many parties, encouraged rather bland documents that could command wide acceptance.

In summary, the nature of the guideline was not innovative or prescriptive. The most it could hope to achieve was to disseminate to smaller audit firms, which had not yet adopted analytical review, some rather general ideas about how this new technique might be used. This does not necessarily imply a judgment on standard of work but it does

⁴This is summarised in *Auditing and Reporting 1990/91*, (ICAEW), p. 1.10.

say something about the type of work undertaken, and hence the possibility of its fulfilling the expectations of outside observers. Those who expected the APC to be proactive in developing new auditing techniques or in prescribing appropriate methods were likely to be disappointed by the guideline on analytical review.

(3) *Independence and consultation.* The membership of the working party was dominated by auditors in public practice and it reported to the APC which was similarly constituted. The APC's internal exposure was to CCAB constituent bodies, which were also dominated by professional auditors: it is notable that the only one that did not offer comments at the pre-exposure stage was the one whose members are not involved in external auditing (the Chartered Institute of Management Accountants). Thus, it was not until 45 months after the working party was formed that the wider public was invited to comment. At the public exposure stage, the following comments were received:

Source	No. of comments
CCAB constituent bodies	4
Big Eight audit firms	7
Other audit firms (all fairly large)	6
Other accounting organisations	2
Total	19

Thus only 15 comments were received from parties that had not previously been consulted, and no comments at all were received from outside the auditing profession. The 'other audit firms' were all medium-sized firms of national standing. Thus, no non-auditors and no small auditors cared to comment. This suggests that Austin Mitchell MP's observation that the APC was dominated by large auditors might have been indicative of lack of interest by other parties rather than a deliberate effort by large auditors to control auditing standards. This view is reinforced by the fact that the comments by the large audit firms suggest that, for the most part, they criticised the draft guideline for being superficial⁵ and not providing sufficient detailed guidance. This suggests that they did not see it as serving their own ends particularly well. We have earlier suggested that one possible role of the guideline was to spread the 'large firm' technique of analytical review to small audit firms, but the responses do not suggest any interest by small firms, and audit guidelines are not mandatory. It is therefore doubtful whether the guideline had much impact on practice, although this can be assessed properly only by further empirical re-

search. However, analytical review is not a subject designed to catch the attention of the public, and responses to the fraud guideline will provide better evidence of public interest.

(4) *Secrecy.* We have already seen that there was no public consultation for the first 45 months, during which time the main principles and form of the final standard were established. During this period, there were no official means by which someone external to the APC or its CCAB constituents could require to be informed of the progress of the debate or participate in it. Public consultation when it did take place did not elicit any wider participation and even if it had done there would have been no requirement for public re-exposure had the APC and the CCAB bodies not thought it desirable.⁶ Indeed, in the present case, re-exposure did not take place, and the final approval stages were private to the auditing profession. However, this should not be taken to imply that there was a conscious attempt to suppress information. A plausible hypothesis in this case is that there was no public interest in the subject and it was therefore not thought necessary to create any means of public communication.

The development of the auditing guideline on the auditor's responsibility in relation to fraud, other irregularities and errors

This topic is at the heart of much of the public criticism of auditors and auditing standards. The central issues relate to two questions:

- (i) To what extent are auditors responsible for detecting fraud?
- (ii) When, in what circumstances, and to whom should auditors report suspected fraud, discovered in the course of an audit (including parties external to the company, such as regulatory bodies)?

The APC's work in this field had its origins in the pressures created by a changing business environment. These changes were international, as is demonstrated by the fact that both the UEC (Union Européenne des Experts Comptables Economiques et Financiers) and IFAC (International Federation of Accountants) issued statements on fraud before the APC started work on the topic. Thus, the fraud issue is an example of the APC's agenda being influenced by international developments. At the request of the APC the Chartered Association of Certified Accountants (ACCA) sponsored a research study by Professor David Flint of Glasgow University, together with

⁵Five of the 19 respondents opposed the draft guideline on these grounds.

⁶Re-exposure would normally take place if new matters of principle were introduced after exposure. It would not take place simply because a previous exposure draft had been widely criticised.

three of his colleagues. The first Flint Report was a background paper submitted to the APC in November 1981.⁷ It reviewed the historical experience of the UK and experience abroad and concluded that there were no statutory or legal grounds for the auditing profession's retreat from its historical position (up to the early 20th century) of regarding the detection of fraud and irregularity as the primary purpose of the audit. The APC's response to the paper was guarded and it was felt that more research evidence was needed before the APC should consider the radical step of accepting that auditors had greater responsibility for the detection of fraud. The further research carried out by Professor Flint and his colleagues involved a questionnaire survey of preparers (including auditors) and users of accounts, in order to measure their perception of the role of the audit and, in particular, to detect whether there was an 'expectation gap' between auditors and others, i.e. whether the users of auditors' services had expectations of the scope of the audit greater than those of auditors. The results of this study, the second Flint Report, were presented to the APC in January 1984.⁸ Although the sample was limited and the response rate disappointing, the overall conclusion was that there was little agreement as to the responsibility of auditors either within or between the auditor and user groups. There was evidence in favour of an expectation gap, with auditors having the narrower view of their responsibilities and being reluctant to change that view.

Whilst the research was proceeding, there was more pressure on the APC from outside, notably from the Department of Trade and Industry. In February 1984, Alex Fletcher MP, a junior minister at the DTI (and a Scottish chartered accountant), made a speech on 'the wider responsibilities of the accountant'. He asserted that there was a need for the annual audit to be seen by trade and industry as a useful service rather than a legal imposition. He also made an unfavourable comparison between the UK self-regulatory body (the APC) and that in the US, where half the members came from, and were appointed from, outside the auditing profession.⁹ He also called for more public disclosure of the affairs of the profession. These criticisms

are similar to those made later by Austin Mitchell MP. Subsequent meetings in 1984 between representatives of the ICAEW and the DTI confirmed that the DTI was interested in the possibility of the extension of the auditor's responsibility for detecting and reporting fraud, and this was confirmed in another speech by Mr. Fletcher in September 1984.

Against this background, the APC set up its working party on fraud and other irregularities in April 1984. The working party had seven members, three, including the chairman (Richard Allan), from 'Big eight' auditing firms, one from a medium-sized auditing firm, one from a small firm, an accountant in industry and a representative of the Scottish audit commission (subsequently replaced by a Stock Exchange representative). The work carried out in order to reach the stage of issuing an auditing guideline is summarised in Table 2. It will be observed that the total time taken from appointment of the working party to issuance of the guideline was one month short of six years. This was longer than the time taken to develop the analytical review guideline, but the topic was much more controversial. In particular, re-exposure was necessary in the case of the fraud guideline. The initial public exposure stage was, in fact, achieved in the relatively short time of 13 months from the appointment of the working party.

The working party submitted its first draft on 'Fraud and other irregularities' to the APC in December 1984. This attempted to summarise the status quo as understood by the accounting profession, i.e. the auditor's responsibility for the detection of fraud and for reporting it to outsiders was minimal. A secretarial memorandum summarising the wider issues was also presented to the APC. The discussion draft was revised to incorporate the APC's comments and was exposed internally in February 1985. A discussion paper was included as a foreword to the guideline. This was based on the secretarial memorandum and posed the wider questions on which discussion was invited, i.e. whether it was desirable or feasible that auditors should accept wider responsibility for the detection of fraud and whether the auditor should report suspected fraud to parties other than company management (or shareholders when the fraud compromised the true and fair view and led to qualification of accounts). The internal exposure was wider than that for the analytical review discussion paper: CCAB bodies were requested particularly to consult their industrial (i.e. non-auditor) members, and the circulation list included HM Treasury, the Council for the Securities Industry, the Confederation of British Industry and the Institute of Directors.

The result of the consultation generally favoured the general approach of summarising the status quo and raising wider discussion issues without

⁷Research Study on Fraud and Irregularities, *First Report—A Background Paper*, Department of Accountancy, University of Glasgow, November 1981. Prepared by Elizabeth A. Simpson, research assistant. Research group: David Flint, Sidney J. Gray, Robert B. Jack and Angela M. McLean. The latter two members of the research group are academic lawyers.

⁸Research Study on Fraud and Irregularity, *Second Report—Perception of Auditors' Responsibility*, University of Glasgow, Department of Accountancy, January 1984. Prepared by J. Andrew Stanners, research assistant. Research group: David Flint, Sidney J. Gray and Robert B. Jack.

⁹It is not entirely clear to what American body Mr Fletcher was referring. The Auditing Standards Board of the AICPA has no lay members.

Table 2
Summary of the Guideline Setting Process: Fraud, Other Irregularities and Errors

	<i>Date</i>	<i>No. of months</i>	<i>No. of working party meetings</i>
1. Working party formation	4/84		
—considering background material			
—preparing a point outline for APC approval		8	4
—preparing a draft for APC consideration			
2. Submitting a draft to APC	12/84		
—considering comments from APC			
—re-drafting guideline		2	1
—submitting revised draft to APC for approval for sending to technical committees			
3. Internal exposure	2/85		
—waiting comments			
—preparing summary of comments			
—considering comments and revising draft		3	2
—submitting revised draft to APC for approval of public exposure			
4. Public exposure	5/85		
—waiting comments and preparing a summary			
—considering current issues		32	3
—revising draft and submitting it for APC consideration			
5. Re-exposure	1/88		
—waiting comments		19	4
—revising draft for APC further consideration			
6. Submitting to CCAB member bodies for approval	8/89		
		7	—
7. Issuing the guideline	3/90		
		<u>71 months</u>	<u>14 meetings</u>

*No. of working party meetings observable in working papers. There may have been other unrecorded or informal meetings.

pre-empting the result. It was generally agreed that it was impracticable to expect auditors to detect *all* fraud, although this would not prevent a widening of existing obligations. Some commentators raised the possibility of limited liability for auditors, as a means of reducing the insurance burden of wider liabilities. With regard to the reporting of fraud, it was generally agreed that management fraud was the sensitive area, since, unlike other forms of fraud, it could not be reported to management. There was disagreement among commentators as to whether management fraud should be reported to third parties, such as the DTI. A third important issue was whether the auditor should be required to report on the adequacy of internal control systems. This was also controversial, because such a requirement would increase the auditor's potential liability in relation to the audit: at present checking the adequacy of internal control is an optional auditing technique that can be substituted by greater substantive testing. A general requirement for checking internal control might be particularly onerous on the auditors of small businesses.

These comments were considered by the working party and the APC and a revised draft was issued for public exposure in May 1985, with a deadline of September 1985 for comments.

During the exposure period, another important development was taking place. In December 1984 the General Purposes Committee of the ICAEW appointed a working party on fraud, chaired by Ian Hay Davison (then chief executive of Lloyd's) and including as a member the chairman of the APC working party, Richard Allan. The seven other members included three currently practising auditors, so that the membership was evenly balanced between auditors and non-auditors. The terms of reference of the Committee included:

- (1) 'Based on the experience of members, not only as auditors but also as business men, as liquidators, tax advisers, and in other similar capacities, to examine and comment on the nature of fraud in modern business life and on the general issues arising in relation to its prevention, detection and investigation.'

- (2) 'To consider whether changes were required in the chartered accountant's responsibilities in relation to fraud, in whatever capacity he was acting.'
- (3) 'To consider whether changes in the law were required in relation to the responsibility of (a) directors and (b) auditors to report suspected instances of fraud to any third party.'

The Davison Committee reported in July 1985 (originally requested for May). The report reviewed recent developments (particularly in the financial services industries) and current problems facing auditors in relation to fraud and made a number of recommendations as to how the Institute should amend its guidance to members and should encourage legislation to amend the statutory framework. It identified four 'key issues'.

- (1) A requirement for managements of certain types of organisations to establish satisfactory internal control systems was desirable. This would assist them in discharging their 'primary responsibility for the prevention and detection of fraud'.
- (2) Where management was fraudulent, Institute guidance should encourage auditors to report suspected fraud to the authorities. The creation of audit committees of non-executive directors would also provide a forum for reporting management fraud.
- (3) Education in information technology was essential if chartered accountants were to be effective in detecting fraud.
- (4) Assistance to the police by chartered accountants was to be encouraged.

Of these key issues, (2) was the most controversial and in October the ICAEW set up another committee, chaired by Lord Benson, to investigate the auditor's responsibility for reporting fraud. The terms of this committee included:

- (a) 'To analyse, in the light of current public expectations, the issues relating to the auditor's responsibilities for reporting suspected fraud, including the purpose, scope and nature of the auditor's report, and to consider the case for amending the Institute's present guidelines.'
- (b) 'To comment on any wider implications for the business community and the public of a change in the auditor's present duties.'

Clearly, these are relevant to conclusions (2) and (4) of the Davison Report (as listed above). If Benson had been requested to draft the Institute guidance suggested by Davison, this might have indicated acceptance by the Institute of Davison's recommendations. The Benson terms of reference were, however, much wider than this, and may be interpreted as an attempt to reconsider the issue.

Meanwhile, when the exposure date expired in September 1985, 82 replies had been received. Their sources were as follows:

<i>Activity of respondent</i>	<i>No. of respondents</i>
Audit practice	43
Accounting bodies	10
Other bodies	3
Industry	12
Internal audit	5
Public sector	3
Banking	1
Academic	2
Retired and unspecified	3
Total	<u>82</u>

Thus 53 out of the 82 respondents (64.6%) were either practising auditors or accountancy bodies representing them. It is therefore not surprising that 69% of the respondents gave a negative answer to the question as to whether the auditor should detect fraud. 23% gave a positive answer. With regard to reporting fraud, 24% of the respondents thought that this should be to shareholders, third parties and the general public. The chairman of the working party, in summarising the responses, concluded that they indicated a difference in perception between auditors and the wider public, i.e. the expectation gap did appear to exist. However, he believed that the problem should be dealt with by education rather than by a widening of auditors' responsibilities, and this view was reflected in the APC's revised draft 'Fraud, irregularities and errors', prepared in November 1985 and submitted to CCAB member bodies for approval. It was intended to issue the guideline in March 1986.

In the event, the APC withdrew its request for CCAB approval in December 1985. The reason for this was that four documents were published at about that time which were important in relation to fraud. The ICAEW published the Benson Report (November 1985) and issued an amended handbook statement 1.306, *Professional Conduct in Relation to Defaults and Unlawful Acts* (January 1986), and the government published the Financial Services Bill and the DTI consultative document *The Auditor's Role in the Financial Services Sector*.

The tenor of the Benson Report was generally conservative: it favoured use of the traditional vehicle of the qualified audit report and reporting to management as means by which the auditor should report fraud and regarded reporting to third parties as an extreme measure, to be undertaken only after giving notice to 'the client' (which seemed to be identified with the directors of the company). Thus, the Davison Report's proposals for reporting fraud to third parties were moder-

ated. The primary responsibility of management for detecting and preventing fraud was emphasised. A similar stance was then in the revised Member's Handbook statement, which emphasised the minimal legal obligations of the auditor rather than a wider concept of responsibility to third parties. The government publications, on the other hand, raised the possibility of a wider statutory obligation for auditors to report fraud and other irregularities to regulatory bodies.

The working party then set about further revisions. An audit brief, *The Auditor and Fraud*, was published in March 1986 to stimulate wider discussion. It summarised the results of both internal and external exposure of the previous draft. A new draft was submitted to the APC in September 1986. It was substantially approved, but further processing was delayed until a related paper on ad hoc reports to supervisors had been finalised. It was also suggested that the guideline be extended to cover illegal acts. Separate draft guidelines on 'Fraud, irregularities and errors' and 'Illegal acts' were submitted to the APC in July 1987 and, following the APC's comments, a revised draft combining the two was submitted to the APC in December 1987. This draft, 'The auditor's responsibility for detecting and reporting fraud and other illegal acts' was exposed publicly in January 1988, with a comment deadline of May 1988.

Twenty-seven comments were received on exposure, from the following sources:

<i>Activity of respondent</i>	<i>No. of respondents</i>
Audit practice	13
Accounting bodies	6
Other bodies	7
Individuals	1
Total	<u>27</u>

Once again, the majority of respondents (70%) consisted of auditors or their representatives, and the lower number of responses (compared with 82 at the previous exposure) suggests an understandable falling-off of interest, following nearly four years of deliberation by the APC. The draft was revised yet again in the light of the comments and then submitted to the APC in October 1988. The voting members of the APC were in favour of the new draft, but the DTI representative¹⁰ expressed disappointment with it. In particular, the DTI representative felt that it would not narrow the expectation gap, that the comments received were overwhelmingly from the auditing profession, that DTI comment on the potential liability of an

auditor choosing not to report an illegal act had been ignored, and that the draft guideline ignored public duties of the auditor which could not be overridden by his professional role. The draft was revised, after further consultation with the DTI, in February 1989, and reference to illegal acts was taken out, to be dealt with in another guideline. In May 1989, the APC considered the revised draft. Two bodies, the Chartered Institute of Public Finance and Accountancy and the Institute of Chartered Accountants in Ireland, suggested re-exposure and another, ACCA, required further revisions before it could accept it. The APC finally decided that there was enough support for the revised draft to be submitted to CCAB bodies for formal approval, and this was done in August 1989. One member of the APC dissented from this decision, on the ground that the draft imposed too wide a responsibility on the auditor to search out fraud. The CCAB member bodies approved the draft and it was issued as an auditing guideline in March 1990.

We summarise below our assessment of the development of the fraud guideline in relation to the four key criticisms identified earlier.

(1) *Slow speed of action.* The total development of the guideline, from the creation of the working party, took nearly six years, despite the fact that the initial public exposure stage was reached in only 13 months. The working party did, as in the analytical review case, suffer some difficulties because of changes of personnel and the problems of arranging meetings at times convenient for busy part-time members. However, these were not the essence of the problem. The long delay (1985 to 1988) was caused by the revision and re-exposure stage. This occurred partly because of the effect of new legislation (the Financial Services Act in 1986) but also, more fundamentally, because of the tension between professional interests anxious to limit the liability of the auditor and public pressure, manifested mainly in representations from the DTI, which sought to widen the auditor's responsibility. Much of the re-drafting, such as the introduction and subsequent deletion of illegal acts, seems to have been peripheral to the main issues and raises the possibility either that the APC, consciously or otherwise, was clutching at straws (i.e. desperate to adapt its proposals to achieve consensus) or was finding excuses to delay action on a controversial issue. This suggestion does not necessarily support the conspiracy theory, that the APC was deliberately defending professional interests. It is in the nature of a body which, like the APC, relies on consensus that it finds difficulty with controversial matters and, in such circumstances, will tend either to delay the decision or shift the debate to different ground where agreement is easier. It was pointed out many times in the debate, both by commentators and by the APC,

¹⁰The views of DTI representatives on the APC were expressed in a personal capacity and were not statements of departmental policy. DTI written comments on exposure drafts were authoritative statements of official policy.

that a significant widening of auditors' responsibilities would require legislation rather than a non-mandatory guideline by a voluntary self-regulatory body such as the APC.

If the above analysis of the delay in developing the fraud guideline is correct, then simply increasing the APC's resources and the commitment of members will not solve the underlying problems. However, if increased resources and commitment enabled all the work to be done by the secretariat under the APC's immediate direction, some time might be saved by removing the exchanges between a working party and the APC. Equally, in the fraud case, removing the requirement for approval by CCAB member bodies would have saved only a few months, rather than years, in terms of the process described in Table 2. On the other hand, the removal of the threat of a final veto by CCAB member bodies might have altered the balance and speed of the APC's own deliberations at the drafting stage.

(2) *Quality of work.* The guideline finally issued in 1990 re-asserts management's primary role for the detection of fraud and error and the auditor's secondary role in designing the audit so as to have a 'reasonable expectation' of detecting fraud or error, acting as a deterrent but not a guarantor against such events. It does not suggest that the auditor's role should include checking that the internal control system is adequate to enable management to fulfil its role. Equally, it emphasises that the auditor's primary duty for reporting suspected fraud or error is to the senior management of the company. Only in extreme cases, when the directors of the company themselves are under suspicion, should reports be made direct to third parties with legitimate interests, such as the DTI or the Serious Fraud Office.

Thus, the guideline is essentially a conservative document, preserving the status quo as perceived by the auditing profession. It is substantially consistent with the conclusions of the Benson Report, publication of which was one factor delaying public re-exposure of the guideline. It cannot be said, as was the case of analytical review, that the document is too general and fails to give specific guidance. It provides a clear summary of the legal position and of steps the auditor should take, although the hypothetical nature of the discussion (fraud, irregularities and errors come in many varieties and situations) necessarily leaves some matters to the auditor's judgment. Thus, if a criticism is to be made of the fraud guideline, it is that it consolidates the status quo rather than breaking new ground. It is, of course, disputable whether a body such as the APC could or should break new ground. However, it could certainly have issued a less cautious statement of auditors' responsibilities. Whereas the guideline is emphatic about what the auditor is *not* obliged to do—'The

auditor is not responsible for the detection of fraud, other irregularities or errors' (para. 7)—when it turns to areas where the auditor *has* an obligation to discover and report fraud, it is more cautious, e.g. 'The auditor's responsibility is properly to plan, perform and evaluate his audit work so as to have a reasonable expectation of detecting material misstatements in the financial statements, whether they are caused by fraud, other irregularities or errors' (para. 9). Presumably the APC would leave 'reasonable expectation' to be defined by the courts, but the court, in turn, would be influenced by evidence of good professional practice, as laid down by the APC, so that the APC could have been less cautious. As Gwilliam (1987) points out: 'Government and the investing public do believe that the duties of a statutory auditor include a substantial degree of responsibility for the detection of fraud and whilst courts today will still no doubt ensure that the auditor's duties are not made too onerous it is perhaps likely that they would tend to support this view.' The editor of *Accountancy*, in commenting on the fraud guideline, was more forthright: 'The profession would be doing itself a favour, therefore, if it reformulated its guidance. Any new version would need to give a clear message that: "The auditor does have a responsibility to detect serious fraud, and the reader can generally rely on the material accuracy of accounts that carry a clean audit report . . ."' (Singleton-Green, 1990).

One notable feature of the fraud guideline was the number of research studies and reports associated with it. The most notable were sponsored by professional bodies: the two Flint Reports, the Davison Report and the Benson Report. The former two relied on legal analysis and on a questionnaire survey. The latter two were committees of 'the great and the good' relying mainly on personal opinion backed by a smattering of legal opinion, and working under great pressure (the Benson Report was prepared in two months, with part-time membership, and reached a unanimous conclusion: a stark contrast to the APC's own rate of progress). There were also a number of questionnaire surveys by audit firms and others exploring the audit expectation gap.¹¹ However, most of the research was based on limited evidence and was directed towards rather narrow sources: personal and legal opinion. This was particularly evident in the Davison and Benson Reports, and the terms of reference of the former explicitly invited this approval ('Based on the experience of members . . .'). There was, for example, no systematic study of alleged audit failure or of actual cases of fraud and error, which might have shed light on the possible ways in which the auditor could better meet legit-

¹¹An example of this genre is *Audits and Auditors, What the Public Thinks*, by Michael Steen, KPMG, 1989.

imate public expectations. Moreover, the parties showed a natural tendency to emphasise the deficiencies of research and call for more research when the results did not confirm their views. For example, the ICAEW's response to the Flint Report was to initiate the Davison enquiry. When this, in turn raised the issue of reporting to third parties, the Benson enquiry was initiated. This effectively dismissed the idea of extending the perceived duty (or lack of it) to report to third parties. It also helped to delay re-exposure of the guideline. The ICAEW did not find it necessary to initiate further enquiries on the subject.

(3) *Independence and consultation.* The fraud guideline was subject to two public exposures, in addition to an enhanced internal exposure that involved government departments as well as professional bodies. There was also a significant input of reports from outside bodies (reviewed above) and the non-voting member of the APC representing the DTI appears to have made vigorous representations during the long fallow period between public exposure and re-exposure.

Thus it can hardly be said that there was a lack of consultation or opportunity for those outside the APC to make their views felt. It is on the issue of independence from the auditing profession that the APC's proceedings are possibly more open to criticism. There can be little doubt that, at the end of six years' deliberations, the APC produced a document largely defensive of the status quo as perceived by the auditing profession. The Flint Report was substantially rejected and the Benson Report prevailed. The majority of respondents to exposure drafts were members or representatives of the auditing profession, and the research reports were sponsored by professional bodies. The DTI non-voting member of the APC made a brave attempt to assert the public interest factor, but the resulting changes were largely cosmetic. Evidence of an auditing expectation gap was either ignored or attributed to lack of education of users of accounts.

Of course, once again it is necessary to say that this does not imply bad faith or incompetence by members or officers of the APC. The nature of a self-regulatory body is that it has to act within the constraints of its authority. In this particular case, it meant that a guideline would have to be approved by APC member bodies. Moreover, it is difficult to take account of a wider public interest if members of the wider public do not come forward in great numbers to assert their views. The APC's difficulties in this regard are well illustrated by the response to the exposure of its draft guideline, *The Auditor's Responsibility in Relation to Illegal Acts* (October 1990). This was felt by the auditing profession to be radical and potentially onerous, and the responses submitted to the APC were overwhelmingly from auditors and over-

whelmingly hostile, so that the APC did not feel able to proceed to issuing a guideline on the topic before it was replaced by the APB (March 1991).

The implication of this conclusion for the APC's replacement, the APB, is that the removal of the final right of veto by CCAB constituent bodies may increase independence, as will the changed balance of membership. However, the lack of legislative authority to support the APB remains a problem, as does the apparent lack of interest by the wider public in offering comments on exposure drafts.

(4) *Secrecy.* We have seen that there were two public exposures of the fraud guideline, and that several of the research reports used by the APC were published. Also, the chairman of the working party published an audit brief summarising the results of the first exposure. Thus, the APC can hardly have been said to have been deliberately secretive. On the other hand, the APC's mode of operation was such that agendas and papers of meetings were confidential and meetings were held in private. Thus, the long debate between the first and second exposure was conducted substantially in private. Since the net outcome was favourable to the auditing profession, by limiting their responsibility, it is not surprising that some commentators have complained that the APC often operated in secrecy. However, it is not clear that greater openness would have affected the outcome. The mutual self-interest of members of the auditing profession, in avoiding a greater commitment to detect or report fraud, might have been expected to lead to a common view amongst many members of the APC irrespective of whether the discussion was held in public or in private.

The auditing guideline on general business insurers

This case was selected as one in which the APC had to deal with a particular industry group, unlike the other two cases which were potentially relevant to any audit.

Insurance business is regulated under the Insurance Companies Act 1982 by the DTI's Insurance Division. The regulatory process includes an annual return to the DTI, in addition to the published accounts, and there are special provisions (section 21A) for auditors to report matters direct to the DTI in certain circumstances. These circumstances were left to be defined by guidance from professional bodies (the Secretary of State having reserve powers to intervene if the professional bodies failed to act) and this need was one of the motivations for the guideline. However, the matter was not initially given high priority. There were already a number of extant technical releases by the ICAEW on the audit of insurance companies, and the APC had other matters on its agenda

that were considered more urgent. It was public criticism from the DTI (a speech by a DTI official at a conference, reported in *Accountancy Age*, 6/12/84) that triggered APC action on the subject.

A working party was established in January 1985, with the intention of developing either an audit brief or a guideline on insurance company audits. The working party was set up, at the APC's request, by the ICAEW's Insurance Industry Sub-committee and serviced by the secretary of that committee. All four members were practising auditors from 'Big eight' firms. It was agreed at an early stage to concentrate on general insurance business, life insurance being reserved for a separate paper.

The progress of the work up to the issue of a guideline is outlined in Table 3.

Two features of the whole process should be observed. First, what started in the first working party meeting as a proposed audit brief ultimately became an auditing guideline. Second, the guideline setting process took more than six years.

The working party took nearly three years to submit a draft to the APC. This was mainly because of difficulties in obtaining input from members who were heavily committed elsewhere. In April 1987, the DTI expressed interest in the

development and two of its staff joined the working party. A first draft (still intended as an audit brief) was produced in August 1987 and comments were invited from the DTI and the ICAEW's Insurance Industry Sub-committee. The DTI representatives requested the addition of guidance on the circumstances in which auditors should make ad hoc reports to the DTI (under section 21A of the 1982 Act). A revised draft was submitted to the APC in December 1987 and was now proposed as a guideline rather than an audit brief.

A central issue in the APC's discussions was the guidance on ad hoc reports. The DTI was still concerned that the guidance was inadequate, and revisions were made to deal with this. There was also discussion as to whether routine auditors' reports to the DTI should be addressed to a specific person. It was decided that, although the Act did not require it, they should be addressed specifically to the Secretary of State, in order to limit the number of people to whom the auditor might be liable.

The revised draft went to the APC in July 1988 and it was publicly exposed in October 1988, without internal exposure: it had originally been intended as an audit brief which would not have required internal exposure.

Table 3
Summary of the Guideline Setting Process: General Business Insurers

	<i>Date</i>	<i>No. of months</i>	<i>No. of working party meetings*</i>
1. Working party formation	1/85		
—preparing a point outline of proposed audit brief		35	6
—preparing a draft for APC consideration			
2. Submitting a draft to APC	12/87		
—considering recommendations from APC			
—re-drafting guideline		10	2
—submitting revised draft to APC for approval for sending to technical committees			
3. Public exposure	10/88		
—waiting comments from public		5	—
4. Summarising comments received	3/89		
—considering comments and revising draft		4	1
5. Submitting to APC for further comments	7/89		
—incorporating comments from APC		11	—
—submitting final draft to APC for issuing the guideline			
6. Submitting to CCAB member bodies for approval	6/90		
		5	—
7. Approval received	11/90		
		4	—
8. Issuing the guideline	3/91		
		<u>74 months</u>	<u>9 meetings</u>

*No. of working party meetings observable in working papers. There may have been other unrecorded or informal meetings.

When the exposure period expired in March 1989, there were only 12 responses. Six of these were from CCAB member bodies, and one from the ACCA public sector group, and of these seven, four offered no comment, which possibly indicates that internal exposure would have been redundant in this case. Of the remaining five responses, four were from auditing firms (three 'Big eight' and one medium-sized national firm). The remaining response was from the Association of British Insurers (ABI), and this was generally supportive, raising points of a mainly technical nature. The most interesting issue of principle raised by the ABI was that it was anxious to stress the limitations on the circumstances in which auditors should make ad hoc reports to the DTI. This suggests a concern with the interests of insurance companies rather than of policy holders.

A revised draft was submitted to the APC in July 1989 and there was further discussion, mainly about matters of form. There was also consultation with the DTI about the possibility of the DTI informing auditors of relevant matters of which it was aware. The DTI was not expressly permitted, by the statute, to do this but it agreed to 'consider, in appropriate cases, informing auditors of factors which may be relevant to their functions' (para. 139). In September 1990 a revised draft was sent to CCAB member bodies for approval, and to the DTI with a request that the guideline contain a statement indicating DTI approval. The guideline was finally issued in December 1990.

The following is our interpretation of the implications of the insurance guideline case study for the four fundamental criticisms of the APC, identified earlier.

(1) *Slow speed of action.* The development of this guideline was the slowest of the three we studied. The guideline was lengthy, but this was because it contained extensive summarisation of legislative and technical information relating to the industry, and this was not of a notably controversial nature. The main source of delay seems to have been the initial lack of time commitment by working party members. There were also delays caused by one CCAB body commenting three months late at the exposure stage and two other bodies delayed the issue of the guideline by two months because it had to be approved by a Council meeting that could not be arranged earlier. Clearly, these sources of delay should be removed by the new APB procedures.

There were, however, other delays in approving and re-drafting by the APC itself. These partly hinged on the DTI's insistence on defining the circumstances in which section 21A ad hoc reports should be made, and the reluctance of auditors or their representatives to comply with this. It is notable that the parallel guideline, *Communications Between Auditors and Regulators under Sections*

109 and 180 (1) (g) of the *Financial Services Act* 1986, was not issued until July 1990, i.e. four years after the Act was promulgated. One of the APC's problems was to ensure consistency in the requirements for reporting to third parties between these two parallel guidelines and that relating to banks (issued March 1989) which also involved reporting to a third party (the Bank of England), as regulator of the industry.

(2) *Quality of work.* The insurance guideline is long and contains much technical information necessary for insurance company auditors. It passed the scrutiny of the ABI and the DTI, and is therefore presumably a technically competent and helpful document. The most controversial element was the discussion of section 21A ad hoc reports. At the insistence of the DTI, guidance on this subject was provided, and it was adequate to make the auditor's position clear in most circumstances. The main criticism that could be made of this guidance is that, as in the case of the fraud guideline, it seeks to minimise the circumstances in which the auditor should report direct to a third party (the DTI in this case). However, a defender of the APC might well retort that this was the overwhelming wish of commentators at the exposure stage (auditors and the ABI, representing the insurance industry) and the DTI did accept the final draft: the Secretary of State has reserve powers if he is not satisfied with professional guidance. Moreover, the insurance guideline is consistent, in this respect, with the parallel guidelines on 'Communications between auditors and regulators' and on 'Fraud, other irregularities and errors'.¹²

(3) *Independence and consultation.* In developing the insurance guideline, the APC dispensed with the internal consultation process, but the relative lack of comment by CCAB members at the consultation stage and their approval of the final draft suggest that nothing was lost in terms of constructive commentary. The working party took a long time to develop the discussion draft and consisted solely of auditors, but the DTI obtained representation and was able to express its views both at the working party and at the APC. The ABI was not consulted by the working party at the development stage of the discussion draft, but its subsequent response to public exposure does not suggest that earlier consultation would have had any material effect: it must be assumed that the auditors on the working party were attuned to the ABI's needs, and perhaps also their interests coincided with those of the ABI on key issues such as auditors'

¹²A useful exploration of the issues involved in reporting to regulators is given by David Tweedie in *The Relationship Between Auditors and Regulators* (a New Zealand Society of Accountants lecture, Wellington, 28 October 1988). Pp. 9-11, in particular, discuss the concerns of the auditing profession.

reports to third parties. The public exposure yielded only one submission on behalf of the industry (the ABI) and none at all from the wider community. This does not suggest that there was a wide constituency of critics who were unable to make their voices heard.

However, having received comments solely from auditors and insurance companies, the APC was reliant on the DTI representatives alone to defend the wider public interest. They appear to have done this with some vigour, but, particularly on the crucial issue of reporting to the Secretary of State (section 21A) they obviously had to compromise with the powerful combined opposition of auditors and the industry who wished to restrict third party reports to the narrowest circumstances possible.

(4) *Secrecy*. As in the other cases, the working party and the APC worked under conditions of privacy and confidentiality, and the long period before public exposure might have made the APC

vulnerable to a charge of secretiveness. However, there is no evidence of significant public interest in this issue, and it is unlikely that a 'sunshine' policy would have made any practical difference to the process or its outcome. The DTI acted as guardian of the public interest in this case and, once it gained representation on the working party, it was fully informed of the proceedings.

Some general conclusions

Table 4 summarises some central points of evidence to emerge from our case studies, with respect to the four key criticisms identified earlier.

We may summarise our conclusions with respect to the four critical issues as follows:

(1) *Slow speed of action*. All three guidelines took a long time (five years or more) to develop, from appointment of the working party to issue of the guideline, and before that there was, in each

Table 4
Summary of Some Key Points of Evidence Concerning the Four Critical Aspects of the APC's Work

<i>Aspect</i>	<i>Analytical review</i>	<i>Fraud, irregularities and errors</i>	<i>General business insurers</i>
Speed of action	—61 months	—71 months	—74 months
Quality of work	—not innovative or prescriptive	—conservative document, preserving the status quo as perceived by the auditing profession, particularly in relation to requirements to report to third parties —provides a clear summary of the legal position and of steps the auditor should take	—contains much technical information necessary for insurance company auditors —conservative for requirements to report to third parties (the DTI) —technically competent and helpful document
Independence and consultation	—4 members of working party: 3 audit firms 1 public sector	—7 members of working party: 4 audit firms 1 public sector 1 industry 1 law firm + representation from DTI	—4 members of working party: 4 audit firms + representation from DTI
	—19 comments on exposure: 4 accountancy bodies 13 audit firms 2 others	—82 comments on exposure: 10 accountancy bodies 43 audit firms 12 industry 17 others —27 comments on re-exposure: 6 accountancy bodies 13 audit firms 8 others	—12 comments on exposure: 7 accountancy bodies 4 audit firms 1 others
Secrecy	—no consultation for first 45 months	—there were 2 exposure drafts and an audit brief	—no consultation for first 45 months

case, a delay between the emergence of the issue and the appointment of the working party. Thus, there was cause for concern about the APC's speed of action.

The slowness of the APC arose, in these cases, from three sources. First, there was a lack of resources, notably lack of commitment of time by members but also secretarial support (due mainly to changes of personnel), which slowed the working parties. This was particularly notable in the analytical review and insurance cases. Second, the APC's own exposure, revision and approval processes were rather cumbersome and time consuming, especially when the matter was controversial (as in the fraud case). Third, there was considerable controversy surrounding some issues, and the process of resolving this in a democratic system involved much discussion and bargaining and, in some cases, possibly even delaying tactics. Sometimes, as in the case of fraud, the controversy was about matters of wide public interest, but in other cases, notably that of analytical review, it revolved around technical issues that were primarily of interest to auditors.

The implication of this analysis for the new APB system is that it may help to alleviate the problem, but only partially. The increase in resources will alleviate the first source of slowness. The removal of the requirement for CCAB bodies to approve guidelines will help to alleviate the second, although the requirement to consult them remains. Controversy and negotiation will continue to occur if the APB is democratic and open in its proceedings, but the other remedies may help to alleviate the resulting delays.

(2) *Quality of work.* All three of the guidelines discussed above have some useful content. The guideline that attracted most criticism from commentators on grounds of quality was the one on analytical review, which was found to be somewhat general and imprecise. However, it would be unreasonable on the basis of the cursory analysis reported here, to dismiss any of these guidelines as being of low technical quality. Moreover, the self-regulatory nature of the APC and its associated committee structure and consultation process meant that its pronouncements must inevitably bear the marks of compromise and hence be somewhat bland.

The criticism that could legitimately be made of all three guidelines is that they did not attempt to re-think or extend the scope and technique of the audit. Rather, they attempted to consolidate the status quo, and, in particular, to limit the obligations and responsibilities of the auditor, e.g. analytical review was not specified as a recommended technique in any particular circumstances, the auditor's responsibility for detecting and reporting fraud was defined within strict limits, and the auditor's responsibility to make section

21A ad hoc reports to the DTI on insurance companies was stated cautiously (paras. 124–127 of the insurance guideline). However, in the APC's defence, it could reasonably be argued that this is not a criticism of the quality of the APC's work but rather its nature. Systematising and clarifying current practice is a legitimate and useful activity that can improve the consistency of auditing and users' understanding of it. This may be the most that a voluntary, private sector body such as the APC can be expected to achieve. Deeper issues, such as extending the responsibilities of auditors, may be a matter for legislation.¹³

If this analysis is correct, the successor body, the APB, is unlikely to escape criticism. Its voting membership is broader than that of the APC and it is less dependent on the approval of individual professional bodies. However, it lacks statutory authority and can only lead auditors as far as they are willing to go.

Although we have not attempted to assess the quality of the APC's output, we can observe its input and in one respect, that of research, this was clearly very slender. Most of the ideas and techniques in the guidelines we studied are derived either from standards developed elsewhere (particularly international standards or US standards) or from the experience of members of the working party or from research carried out before work on the guideline commenced (as in Westwick's study of analytical review). The legal framework was usually examined thoroughly, often with legal advice. Otherwise, the only guideline supported during its development by research was the fraud guideline, where various institutes and professional firms sponsored relevant studies, the APC having no research budget of its own. This did not amount to a coherent research programme and its effect on the guideline-setting process was doubtful: the two Flint reports, which were arguably the most thorough pieces of research, seem to have had little impact on the final outcome whereas the Benson Report, which did have a significant impact, was not supported by research. The new APB does have a research budget and it remains to be seen whether research will have a greater impact on its deliberations than it had on those of the APC.

(3) *Independence and consultation.* All three case studies show that the APC went through its due process of consultation, with one trivial exception (the failure to expose internally the insurance guideline) which was of no practical importance. Moreover, non-auditor APC members (notably the DTI representative) were able to make their views felt, despite their having no formal vote. At the public consultation stage, the results were disappointing. It is understandable that there would be

¹³A spirited defence of the APC is provided by Chandler (1990).

little public interest in a technical issue such as analytical review, but some interest from investors and policy holders might have been expected in the case of insurance,¹⁴ although no comments were received from these sources. Fraud was an issue of great public interest, but it attracted only a low proportion of comments from outside the auditing profession. Thus, there is no evidence that the APC did not provide adequate opportunities for consultation. It may be that it could have advertised its activities more widely and aired the issues in a form more comprehensible to the non-auditor, but the poor responses to public exposure do not suggest the existence of a large reserve of untapped public opinion. It is true that various surveys have suggested a general dissatisfaction with auditing standards and the possible existence of an 'expectations gap', but it seems that these feelings towards the APC on specific issues exposed for public comment were either not strong enough or well focused enough to motivate submissions. The lack of response to the APC's exposure drafts may have been due to the 'free-rider' problem, that individuals do not have sufficient incentive to act for the public good, rather than to the inadequacy of the consultation process. The efforts of DTI representatives on the working parties compensated for this, to some extent, in two of the three cases we studied.

The independence issue is more difficult. APC members were all part-time unpaid volunteers of high integrity. There is no evidence that they saw themselves as part of any organisation for the defence of the auditing profession. Rather, they hoped to systematise, clarify and improve auditing practice. We have already seen ((2) above) that they did this in the evolutionary manner which might be expected of a voluntary self-regulatory professional body. They aimed to consolidate rather than innovate. From an external viewpoint, this can be interpreted as a defence of the status quo. Certainly the APC was dominated by practising auditors and sponsored by their professional bodies, and we have observed that it was reluctant to extend the responsibilities of auditors. When it was perceived to be extending those responsibilities, in the Illegal Acts exposure draft, it was heavily criticised by members of the profession. However, it is difficult to see what other outcome could reasonably be expected from professional self-regulation of this type. The extension of the duties of auditors is a matter for legislation: from

a practical point of view, in order to limit the possible cost of extension of duties, it might be necessary at the same time to limit the liability of auditors, which is also a matter for legislation.

Thus, the question of independence raises fundamental issues about why and how auditing should be regulated. Some of the auditing profession's critics are demanding a level of service from auditors higher than that which has emerged from the current self-regulatory regime. The roots of this problem may lie not only in the well-known problems of professional indemnity (the auditor cannot be expected to be an ultimate insurer against all forms of business failure) but also in the problems of corporate governance (over-powerful directors, and diffuse, passive shareholders who do not even vote at company meetings, still less offer comments on auditing and accounting standards, but complain volubly if they suffer financial loss). These lie beyond the competence or power of the accounting profession to solve, and the critics are really demanding government intervention to change the institutional structure by legislation. In the case of auditing, this might imply a government-backed Auditing Standards Board, with legislative authority for its standards, although wider reforms of corporate governance would be necessary to make such a reform really effective¹⁵ (what is the use of good audit reports if no action is taken on them?).

Against this background, the CCAB has reformed the APC to create the APB. The new body has greater independence of action due to its freedom from the threat of veto from CCAB member bodies and greater independence of thought due to its wider membership, auditors not now being a voting majority. This may enable the APB to be somewhat more innovative. However, it will not give it ultimate authority to impose unwelcome changes on reluctant auditors: the professional bodies are still responsible for professional discipline. Equally, changing the audit process will not solve the wider problems of corporate governance.

(4) *Secrecy*. In our three case studies, we were given access to all the APC's records of the development of the three guidelines. Although many of these papers were originally restricted in circulation, they did not contain any secret information that would have been of wide public interest or significance. Perhaps the occasional irate exchange between members of a working party would have created some mild entertainment in the more sensationally inclined areas of the accountancy press, but the subject matter itself would be unlikely to generate much interest. Most of the effort of a

¹⁴The central issue of the insurance guideline, that of auditors' responsibility for reporting to regulators (section 21A), is directly parallel to a central issue in the BCCI banking case (reports to the Bank of England, under the banking guideline), which has attracted much public comment from politicians and others. This suggests that, unfortunately, such comment tends to be stimulated by disasters or scandals rather than dry exposure drafts.

¹⁵Two senior professional auditors, Hugh Aldous and Hossein Hamedani (of Robson Rhodes) have recently advocated reforms of this type, in an article in *The Financial Times*, 15 August 1991.

working party was spent in drafting and debating rather fine differences of interpretation.

Thus, we do not perceive secrecy to have been a great problem as far as loss of information is concerned. However, it may have been counter-productive in two respects. First, it led to long fallow periods in which the development of the guidelines was not in the public view. Thus, public interest was not aroused, and this may have contributed to the poor responses to public exposure. Second, it contributed to the impression that the APC was a conspiracy by the auditing profession against the public interest, i.e. it was bad for public relations. Thus, there is something to be said for openness, and the APB's constitution requires it to publish its agenda. It remains to be seen whether this will lead to better public relations and, in particular, greater public interest and participation in the standard-setting process.

Some implications for reform

The conclusions summarised in the preceding section have implications for the future of the reformed APB. The new body is a product of the Brindle/Tweedie proposals, although it does not represent full implementation of those proposals. It is therefore designed to fulfil the role previously served by the APC, but in a more efficient and effective manner. It thus represents reform rather than revolution.

It seems that the more vocal critics of the APC had revolution, rather than reform, in mind. Their concern was essentially that a self-regulatory system could not serve the public interest as they perceived it, and would be instead an instrument for the protection of the auditing profession. It seems unlikely that these critics will be satisfied by the recent APB reforms.

The evidence of our case studies does not enable us to assess the relative virtues of self-regulation and public regulation, because the former was the only type of regime in place. However, we are able to point to some issues that would be important in such an assessment:

- (1) If auditor self-interest is replaced by the public interest, how is this to be defined? The public, other than auditors, were demonstrably reluctant to comment on exposure drafts issued by the APC. Politicians, as the representatives of the public interest, could have defined auditors' duties more widely through various regulatory acts, but failed to do so.
- (2) The legal liability of auditors is a central issue of concern, and was a strong motive for the cautious stance taken by the APC on a number of issues. A widening of auditors' responsibilities, in the public interest, would require some limitation on their liability for errors, unless

the cost of audits is to increase significantly to cover the consequent insurance costs.

- (3) Although public criticism of the APC was quite vocal, it is not clear that the quality of auditing standards was really the central issue. For example, Sikka, Willmott and Lowe (1989) quote extensively the reports of audit failures identified by DTI inspectors. These are largely concerned with *compliance* with auditing standards, an issue that was outside the APC's terms of reference. As a consequence of the European Eighth Directive and the Companies Act 1989, a professional regulatory system to check compliance with auditing standards has been set up. It remains to be seen whether this system will be successful (e.g. if there will be less criticism of auditors' competence in the future), but a more stringent definition of the auditor's responsibilities would no doubt put the system under greater strain.
- (4) Above all, any drastic or revolutionary reform of the audit standard-setting system will need to consider that system as part of a wider system of corporate control and governance. This would involve consideration of the relative powers, rights and duties of directors, shareholders and other providers of finance, as well as auditors. Much of the discontent with auditors arises from corporate failure, and it would be unrealistic to assume that changing the content of auditing standards would solve all problems in this area. Moreover, if auditing standards are to make an effective contribution, they must be designed to meet the needs of the particular system they serve. This is not to say that the APC or the newly-launched APB is the best possible auditing standard-setting process for the current needs of the UK. However, any drastic change in the system would require very careful consideration and planning; it is much easier to find fault with the present system (which we have certainly done), than to suggest a better alternative from a public-interest point of view.

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An Empirical Analysis of Financial and Non-financial Managers' Remuneration in Small and Medium-sized UK Enterprises

Robert Watson*

Abstract—This paper examines empirically the influences on managerial remuneration in a sample of 97 UK small and medium-sized enterprises (SMEs). The empirical analysis, based on data obtained from interviews with middle (i.e. non-director level) managers and the published financial records of their employing firms lodged at Companies House, examines the relative explanatory power of a number of human capital, job/firm specific and external labour market variables. In addition, the sample was partitioned into two groups, one comprising 29 financial managers and the other comprising 68 non-financial managers. Separate wage equations were estimated for the two groups to determine whether the factors that influence remuneration differ between the two groups of managers. For the overall sample, the results indicate that the managers' ages, qualifications and previous careers and the size, growth, industry and location of their employing firms are able to explain a large proportion of the variance in remuneration. For the sub-sample analyses, firm profitability, (several aspects of) size, and the managers' career histories are of relatively greater importance in respect of financial managers' remuneration, whilst asset growth, industrial sector and location seem to be of more importance for the non-financial managers. These results are viewed as being broadly consistent with the expectations derived from the extant theoretical and empirical literatures on managerial remuneration.

Introduction

This paper examines empirically the influences on the remuneration levels of a sample of managers employed by small and medium-sized UK enterprises (SMEs). In this paper, the managers concerned are all non-director level employees and, as far as could be ascertained from Companies House records, none of these individuals held a significant number of shares in the enterprises they worked for. Most of the large firm empirical literature has ignored such middle managers and has concentrated on the remuneration of chief executive officers (CEOs). Given the separation of ownership from control and the ready availability of published data on CEO remuneration, this large firm literature has usually focused on the relationship between CEO remuneration and the various measures of firm performance and size that managerialist and/or agency hypotheses have suggested will significantly influence their incentives and behaviour (Main, 1991).

This literature is, however, of very limited value with respect to SMEs because the CEO and the other board members are normally also the major (or even sole) shareholders. This fusion of owner-

ship and managerial control means that, in practice, the SME owner-manager(s)' remuneration is largely a private matter and is primarily determined by their personal preferences and taxation tradeoffs regarding current and future income (see Watson, 1990 and 1991 for a discussion and empirical evidence).¹

Of more relevance to this study of non-director level managerial employees are the institutional and labour economics literatures that have focused on the contracting costs associated with alternative organisational forms (Williamson, 1981) and the operation of internal labour markets (see Creedy and Whitfield, 1988 for a review). Even so, this literature has also focused on large firms. Clearly, because of the very different management structures, competitive environments and SMEs' goals, the large firm findings cannot simply be assumed to apply equally to SMEs.

Another difficulty in researching this area is that the UK SME sector is very heterogeneous. It contains many types of enterprise, ranging from

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¹Of course, stakeholders other than shareholders may have a legitimate interest in the remuneration of SME directors. For instance, because directors' remuneration reduces the asset base of the business, the exposure of debtholders and other creditors to financial risk is increased. Not surprisingly, because of the ease with which business assets can be removed from the firm, much of the bank debt of small firms is secured on the owner-manager's personal assets. This ensures that even if the firm defaults the owner-manager continues to bear the full financial costs associated with any shortfall. For a discussion of these issues, see Keasey and Watson, 1992.

small family operations producing exclusively for a local market, to dynamic, high-growth businesses that are internationally competitive and whose equity is traded on secondary markets (primarily the Unlisted Securities Market (USM) in the UK). Moreover, because of differences in local labour market conditions, firm-specific differences such as performance, organisational structure, industry, etc., and differences in the managerial functions undertaken by individual managers, remuneration levels are likely to differ widely both within and between firms. Neither the 'quality' of managerial labour recruited, the technical skills and other human capital attributes required, nor the relative importance of these factors in determining remuneration seem likely to be uniform across the whole UK SME sector.

Nevertheless, despite such diversity, social comparisons and labour market factors are still likely to provide some degree of commonality between remuneration and the observable attributes of managers undertaking similar functions and responsibilities in similar firms. Individuals are often able to compare wages and conditions in other firms with their own situation and, though adjustment costs may be incurred, individuals are normally free to change employers if they perceive that they can do better elsewhere. Indeed, in an expanding economy experiencing skilled labour shortages, employers frequently have to base remuneration on the levels pertaining in other local and/or competitor firms in order to attract and retain staff. Also, individuals often invest heavily in education and training because employers are perceived to value these and other observable signals, such as experience, as either directly productivity enhancing (Becker, 1964) or as screening mechanisms when recruiting new managers (Spence, 1974).

The extent to which individual specialist skills and knowledge are transferable across different jobs/firms will, of course, influence the degree of commonality in remuneration across different firms. The general financial skills, knowledge of financial markets and reporting regulations required of financial managers are likely to be considerably more transferable across firms (and even industries) than is the case for, say, a production or marketing manager whose skills are likely to contain far more firm and/or industry specific components. Williamson (1984) suggests that where highly firm specific skills have been acquired, the firm may need to pay the employee a wage in excess of the apparent market rate in order to protect its investment. Hence, it may be that any relationship between the remuneration of financial managers and external labour market conditions, observable human capital attributes and job/firm specific characteristics will differ significantly from those exercising other managerial functions.

This paper examines empirically these issues by

analysing information obtained from semi-structured interviews, each lasting approximately one hour, with 97 managers each employed by a different firm. The interviews obtained information concerning the remuneration, biographical details, educational achievements and job histories of the interviewee. Additional information relating to their employing firms was obtained from two other sources. Separate interviews with (at least) one of the directors of each of the firms were undertaken and the financial statements lodged at Companies House relating to the four years immediately preceding the interviews were also obtained.

The empirical analysis focuses on the relative importance of various firm/job specific and individual human capital attributes in determining the remuneration of the managers in the sample. Of these 97 managers, the largest functional grouping, 29 individuals, were financial managers.² This allowed additional analyses to be undertaken on the two sub-samples of financial and non-financial managers to evaluate whether any significant differences in remuneration existed and whether the relative importance of the various influences on remuneration differed significantly across the two groups.

The paper is organised as follows. The second section reviews existing work on managerial remuneration, labour markets and the SME sector. The third section outlines a model of managerial remuneration and the fourth briefly describes the data sources and variables used in the analysis. This section also provides descriptive statistics relating to the remuneration and personal attributes of the sample of managers and the characteristics of their employing firms. In the fifth section, regression results for the model are presented and the last section contains a discussion of the main results and some concluding remarks.

Managerial remuneration, labour markets and the SME sector

It is some time since neoclassical economists have simply assumed that a frictionless spot market for labour existed and that workers necessarily

²The definitions used to distinguish between financial and non-financial managerial functions have been based on the verbatim descriptions given by each individual manager during face-to-face interviews with the researcher in response to questions regarding their exact job title and their main duties and responsibilities. Whilst the actual job titles used varied from firm to firm and, particularly in the smaller firms, some managers indicated that they had duties which transcended more than one functional area, only those managers that indicated that their primary or sole functions were financial in nature were classified as financial managers for the purposes of this study. The non-financial managers covered a wide range of specialisms and the low numbers of managers that could be unambiguously assigned to reasonably homogeneous functional areas prevented further sub-sample analyses.

received wages equal to their marginal product (see Creedy and Whitfield, 1988 for a review of the area). With this model, workers were assumed to be highly mobile and fully informed and simply supplied their labour services to the highest bidder. Labour supply and demand were, therefore, quickly brought into a state of equilibrium through workers moving from one firm to another in response to opportunities to obtain higher earnings.

This perfect information and frictionless model of labour markets is highly abstract and necessarily ignores the many institutional and behavioural influences on the labour market. More recently, economists have attempted to make the model more descriptively realistic by explicitly considering the theoretical consequences of incorporating one or more of these other factors. This has included models that incorporated differences in job characteristics (compensating differentials) (Brown, 1980), information asymmetries (Jensen and Meckling, 1976, Fama and Jensen, 1983a, 1983b), unobservable joint products (Alchian and Demsetz, 1972), human capital attributes (Becker, 1964), firm specific training and asset investments (Williamson, 1975, 1984), risk aversion, transactions costs and incomplete contracts (see Wachter and Wright, 1990 for a review).

As noted in the introduction, however, most of the empirical literature has been primarily concerned with the company size and performance influences on the remuneration of large firm CEOs. The broad conclusion (Blandy and Richardson, 1982, Cosh, 1975, Jensen and Murphy, 1990) of several empirical studies of large firm CEOs is that remuneration is more closely related to the absolute size of the firm rather than to profitability or changes in the market value of the firm (see Baker, Jensen and Murphy (1988) for a review). It is also clear from a number of recent empirical studies (Murphy, 1986, Bartlett *et al.*, 1992 for the US and Main, 1991, Ingham and Thompson, 1993 for the UK) that both human capital and firm specific factors in addition to company size and performance have an important influence on CEO remuneration. Thus, early studies such as Cosh (1975), which modelled CEO remuneration solely in terms of firm performance and size, appear to have suffered from an omitted variables problem that may have exaggerated the size and significance of these factors.³

Though there have been few empirical studies of middle managers, there are a number of theoretical models, such as Lazear and Rosen's (1981) 'rank-order tournament' model and Stiglitz's (1987) 'efficiency wage' arguments, that suggest there is

unlikely to be a close relationship between firm performance measures and the remuneration of middle managers. The absence of a clear relationship between the performance of the firm and managerial remuneration, together with the observation that the mobility of managers between firms was less frequent than the neoclassical economics model might suggest, has directed attention to the administrative processes within the firm, the internal labour market (ILM), that help determine job allocations, specifications and relative wage rates (see Williamson, 1981 and Milgrom and Roberts, 1992 for reviews). In their review of the (large firm) empirical studies of the ILM, Creedy and Whitfield (1988) show that low rates of job turnover are found in many sectors, and that internal promotion is preferred by firms to the appointment of external personnel. They also suggest that wages are tied to jobs within the ILM and are much less responsive to changing external labour market conditions.

ILMs provide opportunities for an individual throughout a career to make progress up a wage hierarchy without moving outside the firm and are, therefore, most highly developed in large firms. Large firms also tend to experience more stable intertemporal performance, are much less prone to fail than smaller firms and so are more able to enter into such agreements without this jeopardising the viability of the business (see Storey *et al.*, 1987 for a review of the area).⁴

Smaller firms are also less likely to undertake formal management training than large firms (Handy *et al.*, 1988); largely because such costs may not be recouped if the worker leaves for a better paid job or can demand a higher wage from his/her current employer. As noted above, however, smaller firms will be less likely than large firms to be able to accommodate such demands. In addition, because of their generally simpler organisational structures, information asymmetries between owners and managers are normally much less in smaller firms than in large ones. In the small firm, the owner/manager is usually more closely involved in the day-to-day management of the firm than either the shareholders or directors of a large firm and are, therefore, usually able to directly monitor managerial actions (see Fama and Jensen, 1983a and 1983b).

Given the considerable differences in the contractual environment and organisational characteristics for smaller firms, it is clear that the

³See Table A3 of the Appendix for a comparison of Cosh's results and the comparable restricted and unrestricted model estimates for the current sample.

⁴Also, the ILM literature suggests that because workers recognise future promotion and higher earnings possibilities that will increase the present value of their lifetimes' earnings they are, therefore, willing to accept in the short-run relatively lower wages. For small firms, however, with their relatively high probability of failure, it seems likely that any implicit promises of enhanced future earnings will lack credibility and can be expected to be heavily discounted by small firm employees.

analyses of the factors influencing the large firm managerial labour market will need to be substantially modified to be applicable to the SME sector. Research on the internal organisation and management of small firms in the UK, has, however, focused almost exclusively on the managerial inputs of the owner-manager (Curran, 1986) because for most small firms ownership and control are fused. Similarly, owner-managers and their presumed tax minimising behaviour were the sole focus of two recent empirical studies on the relationship between remuneration and UK small firm performance (Watson, 1990 and 1991). Even so, almost all firms above a certain size will have individuals who exercise managerial functions but who are not significant residual claimants (owners) of the business. It is these, largely under-researched, individuals that are the focus of this paper.

Information about such individuals is even more sparse (see, for example, Crockett and Elias, 1984 and Deeks, 1972) than for large firm middle managers. A study by Deeks (1972) of managers in the furniture industry found that small firm managers were likely to be younger and more mobile than those in larger firms. Deeks found that, despite being on average younger, almost one third of non-shareholding small firm managers had worked for more than six companies during their career, compared with studies of larger firms where 7% or less of managers had worked for six firms or more. Deeks also found that there were major differences in the levels of educational attainment between small and large firm managers. Less than 1% of managers in the (small firm) furniture industry were graduates whereas other broadly comparable studies of managers in large firms showed that between 19% and 43% of managers in large companies had degrees. A more recent study (Nicholson and West, 1988), also concluded that inter firm moves are more frequent amongst managers in smaller firms.⁵ However, little or no work has been undertaken regarding the remuneration of managers employed by SMEs.

As noted earlier, the SME sector is very heterogeneous. Of particular importance for this study is the establishment in 1980 of the USM in the UK since 49 of the 97 firms in the current sample had USM quotations by the close of 1988. This second-tier market was established in response to the Wilson Committee's (1980) contention that an 'equity finance gap' existed for a minority of dynamic and fast-growing firms (see Buckland and Davis, 1989 for a review). Going public involves the firm in creating and maintaining far more

extensive financial reporting and control systems than is the case for unquoted companies (see chapter 3 of Bannock and Doran, 1987). The more onerous regulatory requirements of a USM listing may require therefore the recruitment of specialist management personnel—particularly in regard to management accounting and financial reporting functions.

The existence of significant information asymmetries, whereby insiders know more about the true value of the firm than outside investors, is a particularly acute problem for young and fast-growing firms seeking external finance. One method by which insiders of high value firms can signal this information to potential suppliers of finance is by appointing managers that are perceived to be of high quality. Fast-growing firms, particularly those seeking a USM listing, may therefore exhibit a strong preference for appointing managers with externally validated attributes such as the possession of professional or high academic qualifications or those with work histories in large organisations.

Many firms seeking a USM listing also claim in their listing documents to be in the process of introducing new executive compensation packages related to firm performance 'in order to attract and retain the highest calibre of executive talent'.⁶ It would appear then, that USM firms are also far more ready to design remuneration packages that tie at least part of managers' pay to firm performance, i.e. executive share option schemes or share-based profit-sharing schemes set up under the Finance Acts. Moreover, managers with attributes highly valued by the external (possibly, large firm) market will only be tempted to move if either high salaries are offered or if the job has other desirable features (compensating differentials) such as a range of fringe benefits, better working conditions, career progressions, etc. Large firms and fast-growing/USM firms may, therefore, be competing with one another in the same market for managerial labour to a far greater extent than with the more 'typical', slow-growing, small firm. Hence, it may be that the pay and conditions attaching to jobs within large firms, which are likely to operate highly developed ILMs, are the relevant benchmark (opportunity cost) for those managers, particularly those undertaking financial functions, recruited to fast-growing and/or USM firms. If so, then it is to be expected that the pay and conditions attaching to such managerial posts will be superior

⁵As noted above, because of the higher rates of small firm failure, it seems likely that some of these job changes will have been non-voluntary.

⁶Brickley *et al.* (1985) found that the adoption of such schemes for CEOs of large US firms was associated with an improved short-run share price performance. They concluded that the market must have viewed these schemes as a signal by firms to investors that CEO pay had become more closely tied to firm performance and, therefore, provided greater incentives to top managers to act in shareholders' interests.

to equivalent posts in less dynamic and/or less highly regulated firms.

A model of managerial remuneration

This section presents a model for examining empirically managers' remuneration in SMEs. It is assumed that, because of uncertainty and other costly to remedy contracting difficulties, economic agents (firms and workers) make use of observable signals (proxies) of likely productivity and conditions of employment. The signalling literature suggests that, given the possibilities for opportunistic action, a signal by high quality agents will only be credible if it is either difficult or costly for low quality agents to imitate (see Spence, 1974). From this perspective, firms (the owner-manager(s)) demand managers for the characteristics they are likely to provide. Thus, the demand for managers depends on their total remuneration (defined as salary and other emoluments) and their likely productivity. The latter is signalled by skills, training, previous managerial experience, qualifications and track record, all of which are assumed to be difficult for low quality agents to imitate.

Similarly, potential managers decide on moving to any particular firm according to the characteristics of that firm and the remuneration package offered. Important signals in this context will be observable characteristics such as past and anticipated firm growth/profits, size, job security and expected career progression.

Assume now a range of firms, each with managerial jobs on offer, and a range of potential managers, each with a range of personal characteristics. Equilibrium salaries are set in the familiar manner.

Symbolically, demand and supply are:

$$L_d = d(W, D);$$

$$L_s = s(W, S)$$

respectively, where W = remuneration, and D and S are vectors of demand and supply relevant characteristics.

At equilibrium:

$$W = w(D, S).$$

That is, the level of remuneration will be explained by the vectors of D and S characteristics.

A remuneration model can be estimated empirically on a sample of managers from different firms using an OLS regression of the following form:

$$\ln(W) = \alpha + \sum_{i=1}^I \beta_i D_i + \sum_{j=1}^J \gamma_j S_j + e$$

where, $\ln(W)$, the dependent variable = the natural log transformation of the managers' total annual remuneration,

D , the demand vector and

S , the supply vector for managerial labour.

The demand vector (D) will contain the human capital attributes of individuals that firms value and the supply vector (S) will contain variables relating to the job/firm specific attributes associated with taking any particular job. Hence, the estimated coefficients will indicate which firm and manager characteristics have most influence on the remuneration levels of the sample.

A model estimated using pooled data, however, implicitly assumes that the relative importance of each factor (as measured by the regression coefficients) is identical for both financial and non-financial managers. Given the previous discussion, this may be unrealistic and, therefore, separate regressions for the two groups are estimated and a Chow test (with Toyoda's (1974) adjustment for heteroscedasticity where necessary) computed to determine whether overall the two equations are statistically equivalent. Also, in order to highlight the source(s) of any significant differences, the pooled model is re-estimated with an additional set of interaction terms to determine whether either the intercept or any of the individual slope coefficients differ significantly across the two groups.⁷

The sample and variables

To test empirically the above model, financial data from Companies House records and information obtained from separate interviews with an owner and one manager in each of 97 SMEs are analysed.⁸ Thus, the sample contains only incorporated businesses that also had at least one non-director level managerial employee. The data requirements of the research design, therefore, effectively excluded the very smallest UK firms. Moreover, the sampling frame was restricted to independently owned businesses and relatively young firms, none of which was more than 15 years old at the time of the interview. The sample also contains a higher proportion of fast-growing firms than that of the underlying population of UK SMEs. These sampling restrictions arise because the present study forms part of a larger project (Wynarczyk *et al.*, 1993) which focuses on the

⁷Each variable in the pooled model was multiplied by a dichotomous variable (labelled FUNC), where 1 represented a financial manager. These additional variables and FUNC were then added to the pooled model. The estimated coefficients on each of these interaction terms therefore represent the differential intercept and slope coefficients of the financial managers relative to the reference category (the non-financial managers). The associated t-statistics on these differential coefficients indicate whether these differ significantly for the two groups (see Judge *et al.*, 1988 for a discussion of the technique).

⁸The interview data were obtained over a nine-month period in late 1988 to early 1989 as part of an ESRC sponsored programme on Managerial Labour Markets (grant no. F20230022). The collection and analysis of the financial data from Companies House was made possible by a grant from the Nuffield Foundation.

relationship between the creation and growth of fast-growth businesses and the managerial labour market. Nevertheless, apart from the high average growth rate of the sample, the comparisons reported in chapter 5 of Wynarczyk *et al.* do not suggest that this sample differs markedly from other samples of UK SMEs with a similar age structure.

The bias towards growing firms in the sample may, however, be an advantage in this context since it maximises the probability of observing the determinants of managerial remuneration. This is because fast-growing firms will have to regularly recruit externally and/or promote internally new personnel to fill managerial positions in the expanding organisation. Hence, growing firms will have both the most need and the necessary experience to attempt to attract and retain suitable managers via the use of financial rewards based on firm performance, external labour market conditions and perceived 'quality'.

Because of availability constraints at the time of the interviews, all of the managers were employed by the main, i.e., parent, enterprise. As it is possible that the personal characteristics, pay and conditions of managers employed by wholly-owned subsidiary businesses may systematically differ from those employed by parent enterprises, the results of this study may not be generalisable to the former. Whilst these various restrictions may reduce the generality of the empirical findings, because of the very heterogeneous nature of the UK SME sector, this is an inevitable consequence of any research design of these issues that utilises (very costly to acquire) questionnaire data. Nevertheless, as can be seen from Table 1, the sample still contains a wide variety of firms and managers.

Though potentially relevant information relating to many more variables than are reported in this paper were collected, several were close proxies for one another. Moreover, they were often highly correlated in the current sample and, therefore, given the relatively small sample size, could not all be entered into the estimating equation without causing statistical difficulties. Given the focus on financial and non-financial managerial remuneration, only the results of the model with the independent variables detailed below are reported:⁹

AGE(+)	manager's age in years
AGE2(-)	manager's age squared
MAN(+)	previously holding a managerial post(0/1)
BIG(+)	previously being employed by a firm with > 500 employees (0/1)

⁹Several other model specifications containing additional variables, such as tenure, years' managerial experience, hierarchical status and sex, were tried. However, using the standard F-test methodology, none of these alternative models was as efficient as the model presented in this paper.

QUAL(+)	possession of first or higher degree, or post-graduate level professional qualification(0/1)
FS(+)	log of employment size/status in hierarchy
Ln(TA)(+)	log of total assets in 1988
CTA(+)	percentage change in total assets 1985-88
Ln(SUBS)(+)	log of total number of wholly-owned subsidiaries
AP(+)	average pre-tax profit/total assets 1985-88
PS(+)	profit sharing and/or profit related pay scheme(0/1)
LOC(+)	firm located in London and South-east region(0/1)
ΣIND(-)	set of 4 industry dummy variables (financial services sector firm, IND1, being the reference category): IND2 = non-financial professional services sector IND3 = other services, printing and retail IND4 = electronics and computing IND5 = other manufacturing
USM(+)	a firm listed on the USM(0/1)

With this model, managerial remuneration (salary plus the individual's own estimate of the cash value of any profit-sharing and other bonuses) is assumed to be a function of the human capital and job/firm attributes represented by the independent variables. A discussion of each of these variables, and their anticipated relative importance in respect of the remuneration of the two groups of managers, is given below.

In studies of large firm wage rates, tenure with the firm has often been found to be a highly significant factor. However, as noted in the second section of this paper, large firms usually operate highly developed ILMs whereby managers tend to be internally promoted rather than needing to move outside the firm. In contrast, inter-firm movements are much greater for SME managers because internal opportunities for advancement are typically more limited. For smaller firms then, tenure is unlikely to be of much importance in determining the remuneration of non-owner managers. What is likely to be of more importance for SMEs is the relationship between age and remuneration. The inclusion of the AGE and AGE2 variables with positive and negative signs respectively allows the relationship between managers' ages and remuneration to be non-linear, i.e. age can have a positive effect on salaries up to a certain age after which greater age may have a zero or negative effect.

Human capital theory suggests that externally recognised and validated educational and

professional qualifications will be highly valued by firms, not merely for the technical skills and knowledge they are presumed to instil in those that hold them, but also as a screening and/or signalling device for recruitment, remuneration and promotion decisions. Hence, it is assumed that QUAL, which is a dichotomous variable coded 1 if the manager holds a degree level and/or a recognised post-graduate professional qualification, will have a positive influence on remuneration.¹⁰ Whether QUAL will be of greater importance for either of the two sub-samples is, however, *a priori* ambiguous. Since, as noted earlier, few SMEs appear to undertake any formal management training, individuals with career histories that include previously holding a managerial position in another firm (MAN) and those with experience of working in large firms (BIG), i.e., firms with > 500 employees, are assumed to be able to command higher pay than other managers. These attributes are likely to be more highly valued in the case of individuals with managerial responsibilities that cover the whole enterprise and/or those whose duties involve a large element of compliance with external regulatory requirements. It is anticipated, therefore, that they will be more important in respect of the remuneration of financial managers.

Large firm employment alternatives, ability to pay, relative workloads and previous empirical studies all suggest that (various measures of) firm size, growth and average profits will all be positively related to managerial salaries. The relative importance of these various job/firm specific measures are, however, expected to vary depending on the areas of responsibility of different managerial functions. FS, which is defined as the log of employment size divided by the manager's hierarchical status (i.e., the number of managerial levels between his/her post and the board of directors), is a measure of relative workload or degree of responsibility. The greater the relative workload associated with the manager's position, the greater it is assumed will be his/her remuneration. A similar rationale lies behind the inclusion of asset size (Ln(TA)) and the extent to which the enterprise is divisionalised (Ln(SUBS)). These (firm-wide) measures of size and complexity are likely to be more closely related to the responsibilities of financial managers than other managers. It is expected, therefore, that they will be of greater relative

importance in determining financial managers' remuneration.

Similarly, given the previous discussion, the USM and average profit (AP) variables are also likely to be of most importance in respect of financial managers' remuneration. Significant increases in firm size would seem to imply that the average workloads of existing managers will also have increased. After controlling for firm size and complexity (divisionalisation), growth in assets (CTA) is, however, expected to be of greater importance in explaining non-financial managers' remuneration. This is because firm growth is likely to have a more direct impact on non-financial managers' managerial responsibilities, effort levels and financial rewards.

The location (LOC) and industry (IND2 to IND5) variables are included to control for differences in external labour market conditions. LOC is coded 1 if the firm is located in London and the South-east and 0 otherwise and is expected to have a positive coefficient because of the relatively high levels of economic activity in that region during the study period. The four industry dummy variables, IND2 to IND5, are expected to have negative coefficients because managerial remuneration in these sectors is likely to have been lower, *ceteris paribus*, relative to the reference category (IND1, financial services sector firms) that experienced rapid growth in the post 'Big Bang' era covered by the study. The impact of the PS variable on total remuneration is expected to be positive for both groups, though its relative importance will depend primarily on both the number of managers in receipt of profit-sharing and other profit-related bonuses and how significant a component such bonuses are in relation to total remuneration.

Table 1 presents some descriptive statistics relating to the overall sample and the two sub-samples of financial and non-financial managers and their employing firms. As can be seen from the table, the financial managers appear to be paid on average some £6,800 more than non-financial managers. This difference is significant at 5% confidence levels. Statistically significant differences at the 5% level are also apparent in terms of the average age of the two groups. The financial managers appear to be on average some 3.4 years younger than the non-financial managers. Moreover, as can be seen from the standard deviations, the age range of the financial managers is considerably less than the other group. In terms of the number of years of managerial experience, tenure in current post and the number of management layers between themselves and the board of directors, the two groups of managers do not appear to differ significantly. However, significantly more (at 10% confidence levels) financial managers possessed higher professional qualifications, had previously held a managerial position and/or had previously worked for

¹⁰Much 'finer' information on the education and professional qualifications of the individuals in the sample was collected and tested. However, because of the small sample size, and the fact that the estimated coefficients on the most numerous categories (first degrees, post-graduate degrees, professional qualifications) were statistically indistinguishable, only the results based on the aggregated category are reported.

Table 1
Descriptive Statistics

<i>Variable</i>	<i>All managers</i>	<i>Non-financial managers</i>	<i>Financial managers</i>
Remuneration (£000)	26.4 (16.6)	24.4 (16.8)	31.2** (15.3)
AGE (years)	37.9 (9.3)	38.9 (10.2)	35.5** (6.3)
QUAL (%)	47.4 (50.2)	32.4 (47.1)	82.8*** (38.4)
MAN (%)	64.9 (48.0)	58.8 (49.6)	79.3* (42.1)
BIG (%)	35.1 (48.0)	29.4 (45.9)	48.3* (50.9)
Years managerial experience	9.0 (8.2)	8.7 (8.7)	9.6 (6.9)
Job tenure (years)	3.3 (3.6)	3.3 (3.6)	3.3 (3.6)
Status in hierarchy (1 = report to board)	1.3 (1.5)	1.2 (1.0)	1.4 (1.1)
PS (%)	61.9 (48.8)	58.8 (49.6)	69.0 (47.1)
FS	4.0 (1.6)	3.7 (1.5)	4.8*** (1.7)
LOC (%)	71.1 (45.5)	73.5 (44.4)	65.5 (48.4)
TA (£m)	12.3 (24.6)	9.5 (21.7)	18.8 (30.0)
USM (%)	50.5 (50.3)	41.2 (49.6)	72.4*** (45.5)
AP (%)	13.5 (12.0)	13.2 (12.9)	14.0 (9.9)
CTA (%)	81.5 (43.7)	86.0 (43.9)	70.9 (45.5)
SUBS (number)	5.1 (6.0)	4.4 (6.0)	6.7* (5.5)
IND1 (%)	8.2 (27.7)	7.4 (26.3)	10.3 (31.0)
IND2 (%)	39.2 (49.1)	44.1 (50.0)	27.6 (45.5)
IND3 (%)	20.6 (40.7)	20.6 (40.7)	20.7 (41.2)
IND4 (%)	7.2 (26.0)	5.9 (23.7)	10.3 (31.0)
IND5 (%)	24.7 (43.4)	22.1 (41.8)	31.0 (47.1)

Standard deviations in parenthesis

** = significant at 5%

*** = significant at 1%

test statistics based on t-values for continuous variables and chi-square values for dichotomous variables

Definitions:

MAN	previously holding a managerial post (0/1)	PS	profit sharing and/or profit related pay scheme (0/1)
BIG	previously being employed by a firm with > 500 employees (0/1)	LOC	firm located in London and South-east region (0/1)
QUAL	possession of first or higher degree, or post-graduate level professional qualification (0/1)	IND1-IND5	industry dummy variables: IND1 = financial services IND2 = non-financial professional services sector IND3 = other services, printing and retail IND4 = electronics and computing IND5 = other manufacturing
TA	Total assets (£000) in 1988		
CTA	percentage change in total assets 1985-88		
SUBS	number of wholly-owned subsidiaries		
AP	average pre-tax profit/total assets 1985-88	USM	a firm listed on the USM (0/1)

a large organisation (i.e., a firm employing more than 500 workers). Though a higher proportion of financial managers received part of their remuneration in the form of profit sharing and other bonuses, this difference is not statistically significant.

In terms of the employing firms' characteristics, it can be seen that the financial managers interviewed tended to be employed by larger firms, with a greater number of subsidiaries and which were listed on the USM. This possibly reflects a bias in the sampling procedure, though it may be that the smaller firms were simply less likely to employ a (non-director level) financial specialist (Wynarczyk *et al.*, 1993).

Analyses of managerial remuneration categorised by the quartile distributions of asset size (TA) and return on assets (AP) and a Pearson correlation matrix of the variables to be included in the remuneration model are shown in Tables A1 and A2 (see Appendix). Table A1 indicates that the mean remuneration levels of the four asset size classes, but not the return on assets classes, increases with class size. The F-test statistic of 11.9 (with 3 and 93 degrees of freedom) in respect of the differences in average remuneration by asset size quartile is significant at 1% confidence levels. The correlation matrix shown in Table A2 indicates that all of the independent variables have positive relationships to the log transformation of remuneration.

The most significant relationships appear to be with the various measures of firm size, i.e., the number of subsidiaries ($r = 0.53$), asset size ($r = 0.61$), FS ($r = 0.50$) and a USM listing ($r = 0.42$). Similarly, the possession of professional qualifications ($r = 0.45$), being a financial manager ($r = 0.26$), previously holding a managerial position ($r = 0.40$), PS ($r = 0.54$), and being located in the London and South-east region ($r = 0.43$) also appear to be of some importance. Note also that the various dimensions of firm size, workload and complexity (FS, Ln(TA), Ln(SUBS), and USM), whilst all being significantly positively correlated with each other, are far from being perfect substitutes.

Empirical results

The OLS regression estimates of the managerial remuneration model are shown in Table 2. A pooled model that has been estimated using data on all 97 managers and the separately estimated regression equations for each of the two groups of managers are shown.¹¹

Turning first to the pooled model, which is a restricted model since it assumes that the coefficients for both types of managers are the same, it can be seen that the overall relationship is significant at 1% confidence levels and that 68.8% of the variance (as measured by the adjusted R^2) in the remuneration of the 97 managers has been explained. It can also be seen that seven of the 18 independent variables are individually significant at 5% or better confidence levels. The significant variables and their signs are as follows:

AGE (+)
AGE2 (−)
QUAL (+)
FS (+)
PS (+)
IND4 (−)
LOC (+)

In addition, the remaining human capital variables¹² (MAN and BIG) and, with the exception of USM membership, all the job/firm specific and external labour market variables have the anticipated signs. These results imply that individuals who had either a higher education degree or some form of post-graduate professional qualification, and who were also in receipt of profit-sharing or other profit-related bonuses, earned significantly higher salaries than other managers. Moreover, those managers with relatively high workloads (FS) and who were employed by firms with a larger number of subsidiaries (SUBS) had significantly higher remuneration. The highly significant positive coefficient on the location variable (LOC) suggests that managers in the London and South-east region obtained significantly higher remuneration than managers in other regions. This clearly reflects a combination of the higher living costs associated with south-east England (and hence, a lower real wage for a given money wage) as well as the generally tighter labour market conditions characteristic of this region in the study period. Similarly, the uniformly negative coefficients on the four industry dummy variables indicate that managers within the financial services sector (the reference category) obtained higher remuneration than similar managers in other sectors. In addition, the positive coefficients on the CTA and AP

¹¹Ramsey's (1969) RESET procedure for detecting an unknown form functional misspecification was undertaken for each of the estimated models presented. The resulting test statistics indicated, however, that the null hypothesis of no misspecification could not be rejected at 5% confidence levels.

¹²The pooled and sub-sample remuneration models were each re-estimated twice; once with the human capital variables excluded and again with only the human capital variables included. In each of these six restricted models, the F-tests indicated that the unrestricted models explained a significantly higher proportion of the cross-sectional variation in managerial remuneration. Hence, it would appear that in common with the large firm studies of CEO remuneration cited in the second section of this paper, both human capital and job/firm specific characteristics are significant explanatory factors in respect of SME managerial remuneration.

Table 2**Remuneration Model Results**Dependent variable ($\ln(W)$) = log of total annual remuneration

Variable	All managers	Non-financial managers	Financial managers	Coefficient difference
Constant	0.068 (0.17)	0.405 (0.95)	-3.322 (4.42)***	-3.727 (4.31)***
AGE	0.095 (5.08)***	0.077 (3.90)***	0.198 (4.30)***	0.121 (2.41)**
AGE ²	-0.117E-2 (5.00)***	-0.101E-2 (4.25)***	-0.256E-2 (4.25)***	-0.155E-2 (2.39)**
MAN	0.123 (1.32)	0.155 (1.55)	0.261 (3.82)***	0.106 (0.88)
QUAL	0.269 (3.79)***	0.251 (2.83)***	0.334 (3.15)***	0.083 (0.60)
BIG	0.043 (0.66)	-0.014 (0.17)	0.164 (3.83)***	0.178 (1.96)**
PS	0.315 (4.84)***	0.369 (4.47)***	0.242 (3.89)***	-0.126 (1.22)
FS	0.061 (2.48)***	0.065 (2.16)**	0.054 (3.73)***	-0.011 (0.34)
LOC	0.307 (4.77)***	0.397 (4.85)***	0.221 (3.00)***	-0.175 (1.59)
Ln(TA)	0.044 (1.61)	0.076 (2.46)**	0.139 (4.48)***	0.063 (1.44)
USM	-0.133 (1.27)	-0.270 (2.04)**	-0.144 (2.55)**	0.126 (0.88)
AP	0.257E-2 (0.94)	0.225E-2 (0.71)	1.544E-2 (4.07)***	1.319E-2 (2.68)***
CTA	0.125E-2 (1.56)	0.196E-2 (2.10)**	-0.075E-2 (1.20)	-0.271E-2 (2.41)**
Ln(SUBS)	0.076 (1.40)	0.012 (0.27)	0.196 (4.92)***	0.177 (2.23)**
IND2	-0.200 (1.23)	-0.392 (2.65)***	0.104 (0.70)	0.496 (2.37)**
IND3	-0.104 (0.65)	-0.319 (2.13)**	0.448 (3.49)***	0.766 (3.89)***
IND4	-0.383 (2.07)**	-0.682 (3.78)***	0.167 (0.83)	0.809 (3.43)***
IND5	-0.185 (1.19)	-0.314 (2.28)**	0.146 (1.14)	0.460 (2.45)**
$\bar{R}^2 =$	68.8%	70.1%	84.3%	
F =	***13.5 _{17.79}	***10.2 _{17.50}	***9.8 _{17.11}	*1.5 _{18.61}
Age at which wage is a max =	40.6	38.3	38.8	

Note: t-statistics based on White's (1980) asymptotic heteroscedastic consistent covariance matrix estimates.

Definitions:

AGE	manager's age in years	AP	average pre-tax profit/total assets 1985-88
AGE2	manager's age squared	PS	profit sharing and/or profit related pay scheme(0/1)
MAN	previously holding a managerial post(0/1)	LOC	firm located in London and South-east region(0/1)
BIG	previously being employed by a firm with > 500 employees(0/1)	Σ IND	set of 4 industry dummy variables (financial services sector firm, IND1, being the reference category):
QUAL	possession of first or higher degree, or post-graduate level professional qualification(0/1)		IND2 = non-financial professional services sector
FS	log of employment size/status in hierarchy		IND3 = other services, printing and retail
Ln(TA)	log of total assets in 1988		IND4 = electronics and computing
CTA	percentage change in total assets 1985-88		IND5 = other manufacturing
Ln(SUBS)	log of total number of wholly-owned subsidiaries	USM	a firm listed on the USM(0/1)

variables imply that overall firm growth and profitability may have some marginally positive impact on remuneration. The coefficients on the AGE and AGE2 variables imply that age has a positive impact on remuneration up to 40.6 years of age after which it begins to have a negative effect. The negative but insignificant coefficient on the USM variable suggests that a USM listing is not associated with higher remuneration once the influence of other factors have been controlled for. Indeed, from the sub-sample estimates, it seems that USM membership is associated with significantly lower remuneration, *ceteris paribus*. These results may in fact be consistent with the 'compensating differentials hypothesis' if the USM firms have a significantly lower probability of failure and have a more developed ILM for managers.

The separately estimated equations for the financial and non-financial manager samples reveal some other interesting features. For instance, the non-financial managers' model, as might be expected given the larger and less homogeneous nature of the sample, is unable to explain as great a percentage of the variance in remuneration as the estimated model for the financial managers, 70.1% and 84.3% respectively. Moreover, the differing size and significance levels of the individual coefficients in the separately estimated models appear plausible. It can be seen that asset size, the number of subsidiaries, previous managerial and large firm experience and overall firm profitability are of greater importance in determining financial managers' remuneration than is apparent for non-financial managers. Conversely, growth in assets, location and industrial sector appear to be of more importance for the non-financial managers.

Though the Chow test F-statistic for the overall equation of 1.5 is barely significant at conventional confidence levels, this appears to be largely due to a combination of collinearity between the independent variables and the relatively small sample sizes. Nevertheless, the interaction tests on each of the individual variables and the constant term (shown in the 'difference' column in the table) indicate that some of the differences in the individual human

capital (AGE and BIG) and job/firm specific (AP, CTA, SUBS and the four industry dummy) coefficients are statistically significant and in the anticipated direction.¹³

Concluding remarks

Managerial labour services are highly non-standard, in that the skills, areas of responsibility and scope for discretion of individual managers will vary greatly because of differences in firm specific factors, operating environments and the managerial functions undertaken. In addition, there are large differences in firms' ability to pay and in individuals' abilities and motivations. It may not seem plausible then to suppose that the remuneration of a cross-section of managers employed by firms of differing sizes and sectors are capable of being adequately explained in terms of a few observable firm and individual characteristics. Despite this, the attempt to model the determinants of financial and non-financial managers' remuneration has been relatively successful, both in terms of the estimated models' explanatory power and in terms of the plausibility and signs of the significant variables. From the results presented above, it is clear that a number of individual human capital and firm specific attributes are important influences on remuneration. Interestingly, despite the fact that almost 62% of the sample received part of their remuneration in the form of profit-sharing and/or profit-related bonuses, firm performance, as measured by their average reported pre-tax profits over a four-year period, does not appear to be a significant determinant of total remuneration, though the relationship appears to be significantly stronger in respect of financial managers.

The results presented in this paper indicate that, although on average the financial managers appear to be more highly paid than their non-financial counterparts, there is little evidence to suggest that once differences in their human capital and employing firm/job characteristics have been controlled for, they are more highly paid than other managers. However, due to collinearity between the independent variables and the relatively small sample sizes, what is less clear is the extent to which the relative importance of individual factors that influence the remuneration of the two groups of managers significantly differ. For instance, the non-financial managers' ages and qualifications and their employing firms' asset growth and industrial sector appear to be more important determinants of remuneration than appears to be the case for the financial managers. Conversely, asset size, the number of subsidiaries, and an employment history that includes being recruited from a large firm and/or from an existing managerial post

¹³It could be argued that the relationship between remuneration and the independent variables is more complex than has been allowed for by this relatively simple additive model. For example, previously holding a managerial post and also previously working for a large firm may have a proportionately greater influence on remuneration than suggested by the individual coefficients on these variables. Similarly, it may be more plausible to suppose that profitability will have a greater influence on the remuneration of managers that were also in receipt of profit-sharing bonuses. To test these possibilities, both the pooled model and each of the sub-sample models were re-estimated with two additional interaction terms, MAN*BIG and AP*PS, included in the equations. However, neither interaction term was individually significant or materially altered any of the reported results.

elsewhere, appear to be of relatively more significance in determining financial managers' remuneration. Further work on a much larger sample will, of course, be required before it is possible to conclude that any or all of the results presented in this paper are robust enough to be viewed as typical of the remuneration patterns found across the whole UK SME sector of the economy.

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Book Reviews

Auditing into the Twenty-First Century. W. M. McInnes (ed). Institute of Chartered Accountants of Scotland, 1993. 63 pp. £12.50.

This discussion document published by the Institute of Chartered Accountants of Scotland is the fruit of a research project investigating how the expectations gap in auditing might be reduced in the most effective manner. This is a highly topical area and one which has recently been addressed directly by the Auditing Practices Board in its discussion paper *The Future Development of Auditing* (APB, 1992) and in the ICAEW Research Board's *The Audit Expectations Gap in the United Kingdom* (Humphrey, Moizer & Turley, 1992). The role of audit and possible extensions to that role also featured significantly in the Cadbury Report on Corporate Governance (Cadbury, 1992). Perhaps not surprisingly, there is much common ground in this monograph with the APB's discussion paper, particularly with regard to the development of the audit role. There is a call for the auditor's present responsibilities to be extended to reporting on a directors' statement as to the going concern basis on which the financial statements are prepared, and a separate opinion on whether the directors have set up and maintained systems of internal control that minimise the opportunities for fraud and other illegal acts and maximise the likelihood of the detection of any irregularity.

The present institutional framework for audit is criticised on the grounds that: it leaves auditor independence open to question; it fails to provide clear guidance on reporting high level fraud and irregularity to third parties; and it fails to ensure that auditors take sufficiently into account the interests of financial statement users other than the company and immediate shareholders. The report also follows the APB (and conventional wisdom in the profession) in recommending that an auditor's liability for negligence should be limited in some form.

The APB's *Future Development of Auditing* calls for greater shareholder involvement in the auditor appointment process but it is not specific about how this is to be achieved. Although it discusses possible directions for institutional reform it makes few, if any, concrete proposals for changing the framework within which audits presently take place. In contrast, the ICAS research group

proposes both a significant shift in the balance of audit from external audit to internal audit and the removal from the executive directors of the power to appoint both the head of the internal audit function and the external auditors (or assessors as the discussion document prefers to call them). All listed companies would be required to establish and maintain a strong internal audit function under the direction of a Chief Internal Auditor. The internal audit function would have responsibilities with regard both to the management information systems and internal control systems and to the company financial statements. The external assessors would assess the work of the company's internal auditors and in addition would have the responsibility for auditing all material items in the financial statements and making their own judgments as to whether the financial statements give a true and fair view.

The head of the internal audit function would be appointed by a committee of the non-executive directors but the external assessors would be appointed by an Audit Review Panel consisting of 'three capable and independent individuals' who would have the responsibility for supervision of the assessment process on behalf of the shareholders or primary stakeholders and who would be responsive to the needs of other stakeholders. Members of each company's Audit Review Panel would be drawn from a list maintained by a competent authority (such as the Stock Exchange). The Panel would control the appointment and remuneration of the assessors and be required to give its permission if the company wished to use its external assessors for consultancy services.

Overall, the discussion document makes a valuable contribution to the literature, its proposals are challenging and its authors are to be congratulated on focusing on the need to change the institutional framework within which the auditor works if there is to be any expectation that an extension to the auditor's role will bring about the desired benefits. However, a number of points which emerge from the document may need further consideration before its conclusions are uncritically accepted as a basis for policy prescription.

The first is that although the foreword describes the discussion document as the result of a major research project this perhaps gives a slightly misleading impression of its provenance. The

research element is essentially derivative, based upon interpretation and analysis of previous studies. Perhaps it would be more accurate to say that the document contains the thoughts of the Research Committee of the ICAS on the appropriate future direction for auditing, these thoughts being collated and distilled by their director of research. This does not necessarily make them any less valuable or authoritative but clearly the policy prescriptions will embody the particular perceptions of the Research Committee members on issues such as the efficient functioning of the capital markets, entrepreneurial freedom, investor protection, equity, etc.

The second point, which is linked to the first, is that the study, in common with most others of its type, lacks a clear analytical framework. The study does set out criteria for determining whether a societal expectation is 'reasonable', based on whether there is an effective demand for the service that the expectation represents and whether someone is willing to supply that service. But these criteria can be questioned in that they could be interpreted as allowing a pure market forces solution to the appropriate extent and nature of audit, and, in any case, it is extremely difficult to link them other than in the most general terms with the choice of those expectations that are reasonable and those that are not. As I have indicated above, these choices are essentially matters of belief, as evidenced in the study by the use of the phrase 'we believe' at least 21 times in the chapter which discusses which of the identified expectations are in fact reasonable.

The third point relates to the practicality of those proposals which are common to both this document and that of the APB. It has been questioned whether it is possible to define and measure the nature of appropriate relevant and reliable internal controls (see e.g. Gwilliam, 1985; Keegan, 1993) although there are present instances, e.g. under the Financial Services Act and in the audit of Lloyd's syndicates, where auditors do have responsibilities with regard to assessing the strength or otherwise of systems of internal control. Others have queried whether auditors can make a valid cost effective contribution to the assessment of a company's going concern status (Citron and Taffler, 1992; Gwilliam, 1993). Ideally, investors need complete information about the likely distribution of future cash flows. A going concern qualification may be seen as a signal that the likelihood of these future cash flows being negative or near zero is high. However, the near impossibility of determining, other than in the most general terms, the distribution of future cash flows, together with the absence of any yardstick by which to assess at what point the perceived

variability of future cash flows is such that it should be drawn to the attention of investors and other interested parties, militate against auditors playing a significant role in reporting on future risks.

The fourth point relates to the prevailing cultural perception, strongly reinforced by the report of the Cadbury committee, that the general solution to problems of corporate governance lies in the interaction between non-executive directors (or 'capable and independent individuals') and an extended role for audit. This may be questioned in various ways. Some have explored from a historical and theoretical perspective the manner in which the solutions based in an accounting and auditing paradigm which have been imposed in particular markets arguably go beyond the compass of a wholly economic cost-benefit analysis (see e.g. Gwilliam, Hoskin and Macve, 1992). Others have voiced more prosaic concerns as to whether executive management's power of control over information and over the appointment and remuneration of non-executive directors does not fatally flaw this solution and have wondered whether, given the questions raised over auditors' ability to perform their existing role adequately, an extension to that role will bring about the sought-after benefits. In this latter context, one may have doubts as to the wisdom of limiting auditors' liability when, arguably, the latent threat of some form of legal exposure is the most effective means of maintaining audit standards.

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Accounting Control and Management Philosophies. *Stuart Jones, Colin Rickwood and Sheila Greenfield.* Research Board, ICAEW, 1993. 173 pp. £10.

The control of large complex organisations is an issue which has received increasing interest in the last decade. Not only have there been attempts to identify and design appropriate control systems for such organisations, but the growth of divestment of divisions and so-called retrenchment to core business has emphasised that there are limits to effective control in such cases.

In the context of these developments, the authors' principal research aim was to investigate the nature and role of accounting control systems (ACS) in 12 British-based complex organisations at the interface between central management and operating subsidiaries. Within this broad objective, the authors also aimed to provide a classification of the organisations according to the predominant philosophies of their group control; to investigate the effects of these philosophies upon the nature of ACS; to investigate interrelationships between control philosophies, commercial context, and the organisational form of the control structure; to investigate how divisional informational inputs are perceived and used by both divisional managers and the centre; to investigate the perceived consistency between ACS arrangements in subsidiaries and group control philosophies; to investigate the extent to which divisional managers perceive the information they provide to be useful to central managers and to themselves; and to identify the role of informal information and dialogue.

The results of the authors' efforts are presented in nine chapters. After three chapters entitled Introduction, Theoretical Basis and Methodology, chapters 4 to 8 present the empirical findings. Each of these chapters and chapter 9, the concluding chapter, very helpfully draws together the principal messages from each stage of the investigation. It is difficult in such a short space to do justice to the authors' findings, but the following gives a flavour of the insights to be gleaned from this highly interesting monograph.

Chapter 5 reveals that one of the key uses of information transmitted from the division to the centre is as a signalling device so that surprises are avoided. Later on, in chapter 8, the need to provide such signals in addition to actually running the business is shown to have led to feelings of considerable stress amongst managers at the operating level. The perceived shortcomings of the provision of vast quantities of information to the centre are addressed in chapter 6 and neatly summarised in the following quotation from one of the participants in the study:

We produce a book—but it's useless because it's out of date. Only non-executive directors

pay any attention to it—it's too late. We are good at accounting but not at control. (p. 106)

Moreover, divisional management are rarely able to analyse the information provided in any case. In a further quotation, the sentiment of which is likely to be all too familiar to academics, a manager complains:

... There is so much change that we can never establish a routine to allow us to review the information input—and since it's on a different basis each time it does not help with understanding what it means anyway. (p. 63)

However, there was strong evidence that very few groups prescribed the format for internal accounting systems and that operating companies were permitted and encouraged to develop ACS which were appropriate to their business. Hence the authors identify a novel twist to the contingency theory debate. Whilst at an organisational level the universalistic view of the ACS was predominant, there was some scope at the divisional level for formal ACS to be designed according to contingency principles.

The authors find that control problems in large complex organisations are related to weaknesses in the formal informational links between divisions and the centre. Importantly, they report in chapter 7 that these difficulties were partially offset by the widespread use of informal information. Moreover, rather than being a negative aspect of control, as is sometimes considered to be the case, informal systems were the result of positive choices by the users of accounting information and were so powerful that they tended to eclipse the formal and ritualistic information.

For this reviewer, the monograph ends on an important but rather disappointing note. Managers in a number of the organisations studied are reported as perceiving that divestment of their unit was a possibility, but that they could do nothing about it. In view of their general findings, it might well have brought an extra dimension to the study to have examined the extent to which divestment had in fact been undertaken by the firms in the sample as a means of dealing with control problems where even informal linkages were unsatisfactory. There is some suggestive evidence from elsewhere that this reason, at least in part, is behind many divestments.

The authors are, however, to be congratulated on marshalling such a wealth of material on the control issues involved in the link between the centre and divisions, and providing important new insights into how to deal with the problems that arise. Their findings will have major implications both for the actual control of large complex organisations and for academic researchers in this area. For example, if, as the authors argue persuasively,

the companies studied demonstrate that the claimed benefits of an M-form structure are illusory, then how are such organisations to be controlled effectively?

The evidence presented also sheds light on the wider corporate governance debate and the problems involved in addressing a particular aspect of the Cadbury Committee's proposals, namely achieving and reporting on the effectiveness of

internal control systems. There would appear to be a clear message that those firms which intend to use only a formalised and mechanistic approach to this issue may well meet reporting requirements but it is doubtful whether effective corporate governance at the internal level will be achieved.

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Ashton, D. J. (1986), 'Goal Programming and Intelligent Financial Simulation Models, Part 2', *Accounting and Business Research*, Spring.

Watts, R. L. and Zimmerman, J. L. (1986), *Positive Accounting Theory* (Englewood Cliffs, NJ: Prentice-Hall).

Style and spelling

Abbreviations should be written as, for example, FASB and not F.A.S.B. Words such as 'realise' should be spelt with an 's' not a 'z'. Single quotations marks should be used, not double.

Mathematical notation

Mathematical notation should be used only where it adds rigour and precision, and should be properly explained in the text. Equations should be numbered in parentheses, flush with the right-hand margin.

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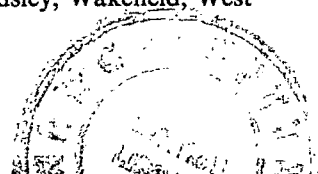
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The Pricing of Audit Services: Further Evidence from the Canadian Market

Teresa Anderson and Daniel Zéghal*

Abstract—Since the seminal work of Simunic (1980), many studies have investigated audit pricing, competition in the audit industry, product differentiation and audit cost functions. This study expands on the work done to date by examining Canadian audit fees across time, audit firm and industry. The observations of audit fee data span the period of time during which the provincial codes of professional ethics with respect to fee tenders and advertising in general were relaxing in Canada. The results reported in this study support the existence of differentiated audit services in the Canadian audit market, and are consistent with DeAngelo's (1981) size interpretation of audit quality. Although no significant differences in the pricing of audit services across time are detected, the data provide evidence of significant pricing differences across (pre-merger) Big Eight audit firms in the small auditee market, suggesting that treating these audit firms as a homogeneous group in future research may not be appropriate. These inter-firm pricing differences do not appear to be due to the potential confounding effects of the auditee's industry. In contrast to previous studies, a significant positive association between internal and external audit costs is observed, suggesting a complementary, rather than a substitute, relationship.

Introduction

Following governmental concern¹ and media attention² in the late 1970s and early 1980s surrounding audit pricing practices, several studies have investigated audit firm pricing, competition in the audit industry, product differentiation and audit cost functions. These studies developed regression models to proxy for the unobservable production function of the auditor. In these audit pricing models, a size measure and a complexity indicator have been consistently identified as significant independent variables, although there is some variability in the significance of specific variables.

The purpose of the study reported here is to provide further evidence on audit pricing practices in the Canadian audit market for publicly traded companies. The main objective is to provide more testing on the question of product differentiation. This is particularly important because of the apparent oligopolistic market structure characterising the market for auditing services and also

because empirical tests of the product differentiation hypothesis are still inconclusive.³

This study examines audit fees in the following ways: it uses cross-temporal data that spans the period of time over which the Canadian rules of professional conduct with respect to audit fee tenders and advertising in general were relaxing;⁴ it examines explicitly for pricing differences among the Big Eight audit firms after controlling for auditor size; and it examines for industry effects and the relationship between internal and external audit costs. In addition, the analysis is structured to examine the two competing hypotheses that exist in the literature with respect to audit quality: the audit firm size model of DeAngelo (1981) and the reputation or brand name model of Klein and Leffler (1981).

³In the US, Simunic (1980) found no price differences between Big Eight and non-Big Eight auditors in samples of both small and large auditees, while Palmrose (1986) and Francis and Simon (1987) found that Big Eight prices were higher than non-Big Eight prices for small auditees. A similar positive association between audit firm size and audit fees for samples of relatively small companies was also reported in Australia by Francis and Stokes (1986), and in the UK by Taffler and Ramalinggam (1981). Francis (1984), on the other hand, reported that Big Eight audit prices were significantly higher than non-Big Eight audit prices in samples of both small and large companies in the Australian market. In New Zealand, Firth (1985) and in Canada, Chung and Lindsay (1988) found no significant pricing differences between Big Eight and non-Big Eight audit firms.

⁴A landmark change in the By-laws of the Institute of Chartered Accountants of Ontario Members' Handbook occurred in late 1979, when for the first time, a member was permitted to respond to an invitation to tender on an audit engagement (Rule 301.2). This change was adopted by a number of other provinces thereafter and the fee tender process for audits across Canada is assumed to have been affected by the early 1980s.

*The authors are, respectively, associate professor and professor at the University of Ottawa, Faculty of Administration. They gratefully acknowledge the helpful comments of Dan Simunic, Haim Falk, workshop participants at the University of Alberta and the referees. Financial assistance was provided by the Deloitte Haskins and Sells/CAAA Research Support Program and the Social Sciences and Humanities Research Council of Canada. The authors are members of the CGA-Accounting Research Centre at the University of Ottawa.

¹The US Senate Reports of Metcalf and his successor Dingell both expressed concern for the structure of the market for audit services in the US, and particularly the possible existence of non-competitive pricing.

²Davison (1981), Hobgood and Sciarrino (1972) and The Hundred Group (1981) suggest that clients are concerned with rapidly rising audit costs and worry about value for money.

The main results reported in this study support the existence of differentiated audit services in the Canadian audit market: a significant pricing difference is detected in the small auditee market when a continuous size metric is used to measure audit quality. These results are consistent with DeAngelo's (1981) size interpretation of audit quality. Further, when auditor size is controlled for, significant pricing differences across the Big Eight firms exist in the small auditee market. The inter-firm pricing differences do not appear to be due to the potential confounding effects of the auditee's industry. In contrast to previous studies, a significant positive association between internal and external audit costs is observed, suggesting a complementary, rather than a substitute, relationship. The rest of the paper is structured as follows: the conceptual foundation for the audit fee model is presented in the next section, the empirical methods are described in the third section, the results are reviewed in the fourth, and a summary and conclusion appear in the final section.

The audit fee model

Prior research has used a variety of regression equations to capture the audit fee function, but most are based on elements of Simunic's (1980) model and use as explanatory variables measures of auditee size, auditee complexity, audit risk and auditor size.

Auditee Size

Larger organisations enter into more financial transactions that, by themselves, demand more audit review time. Therefore, client size is expected to be associated with audit fees. Following previous pricing studies using industry cross-sectional data (Elliott and Korpi, 1978; Simunic, 1980; Palmrose, 1986), we use total assets to measure size.

A positive relationship between auditee size and audit fees has been documented by many prior studies: Simunic (1980) and Palmrose (1986) in the US; Francis (1984) in Australia and Firth (1985) in New Zealand; Taylor and Baker (1981) in the UK; Low, Tan and Koh (1990) in Singapore; and by Chung and Lindsay (1988) in Canada. This relationship was also found in public organisations by Baber (1983) and Rubin (1988). These studies detect a non-linear relation between audit fees and size, which justifies a logarithmic transformation of this variable in the model.

Auditee Complexity

More complex organisations involve either more audit time or more senior auditor involvement, or both, as the nature of the transactions and the structure of the organisation are more diverse and difficult to review adequately. In addition, certain

balance sheet items may be more time-consuming to audit than others. Common measures of complexity in prior research include the number of industries in which the company participates, the number of its subsidiaries, the extent of its foreign operations and the composition of its assets. Here organisational complexity is measured by number of operating industries, number of subsidiaries, number of foreign subsidiaries and the proportion of assets in receivables and inventories.

Audit Risk

An audit firm bears a risk that it will be held legally liable to third parties for losses attributable to misrepresentations in the audited financial statements. The likelihood of the losses being borne by the auditor increases as the ability of the company to bear losses decreases. Low profitability and, in particular, the existence of accounting losses identifies companies with a higher risk of financial distress.⁵ Audit firms may deal with this risk in one (or both) of the following ways: they may increase the time spent on the audit to ensure that no material misrepresentations exist, thus reducing audit risk, or they may charge a premium to compensate them for this risk (Simunic, 1980; Wallace, 1984). Either action results in higher fees. Accounting net income and the existence of auditee accounting losses are used here to capture this risk.

Auditor Size

Audit fees are posited to be affected by auditor size in three ways: by product differentiation; by the potential for non-competitive pricing; and by economies of scale.

Product differentiation is believed to manifest itself in the audit services market by differences in quality across audit firms. There exist in the literature two general theories of audit quality. The work of DeAngelo (1981) defines audit quality as the joint assessment of audit firm competence (they are capable of discovering a breach in the client's accounting system if one exists) and independence from the client (they will report any breach they find). She argues that this quality difference is directly related to the size of the audit firm and her arguments support the use of a continuous size metric to measure auditor quality.

In contrast to DeAngelo's (1981) formulation is the brand name model of Klein and Leffler (1981), in which firms develop reputations to proxy for quality. In this model, the brand name comes first and leads to a quality-assuring price that is higher than the minimum quality price. In the auditing

⁵There is an extensive literature that examines the ability of various accounting numbers to predict financial distress leading to business failure. A company's profitability has consistently exhibited significant predictive ability and is used here for this reason.

industry, the Big Eight firms appear to be brand name producers of audit services and this Big Eight/non-Big Eight dichotomy is commonly used by researchers to capture these reputational differences.⁶ This study uses both measures of audit quality. In a competitive market, higher audit fees being charged by large audit firms is evidence of differential quality.

With respect to competitive pricing, a crucial assumption made by studies in this area is that the market for small auditees⁷ is competitive. The large number of audit producers in this market lends support to this assumption. Concern has typically been expressed only for the competitiveness of the large auditee market where statistics show over 90% of the companies are audited by the Big Eight firms. Holding everything else constant, higher audit fees in the large auditee market is evidence of non-competitive pricing.

With respect to audit costs, audit firms that specialise in certain industries may experience economies of scale (Dopuch and Simunic, 1980; Eichenseher and Danos, 1981; Danos and Eichenseher, 1982; Johnson and Lys, 1990). The cost of production function for a specialised audit contains a large fixed component because of the required expenditures in specialised resources (i.e., branch offices, statistical software, decision aids and employee training) necessary to audit firms in particular market segments. Although medium size audit firms may choose to specialise, it is large auditors that may enjoy economies of scale by spreading the fixed cost over a large client base and passing these savings on to clients. Prior research suggests that economies of scale effects may be more evident when audit firms compete for very large companies (Benston, 1985). In the case of a client with a large number of subsidiaries, for example, the auditor can use a uniform audit programme that may save the client money. Lower audit fees being charged by large audit firms is evidence of economies of scale effects, everything else being equal.⁸

These arguments suggest that non-competitive pricing and economies of scale, if they exist, are expected to occur in the large auditee market. Thus,

it is important for empirical studies to split the sample into large and small auditees, as is done here. Because the effects of these two factors on audit fees are offsetting, their presence is difficult to observe. Audit quality differences, non-competitive pricing and economies of scale are jointly examined by partitioning the sample by auditee and auditor size. The following summarises the possible audit fee pricing outcomes, and how they may be interpreted (adapted from Simunic, 1980 and Francis and Stokes, 1986):

$B8$ = Big Eight audit prices,

$\overline{B8}$ = non-Big Eight audit prices.

1. If $B8 > \overline{B8}$ for small auditees, and $B8 \leq \overline{B8}$ for large auditees, this is interpreted as competition and quality effects existing throughout the market and economies of scale effects existing in the large auditee market.
2. If $B8 > \overline{B8}$ for small and large auditees, it indicates competition and quality effects exist everywhere but economies of scale may not.
3. If $B8 < \overline{B8}$ for small auditees and $B8 \geq \overline{B8}$ for large auditees, scale economies are presumed to exist in both markets and monopolistic pricing to exist in the large segment.
4. If $B8 < \overline{B8}$ for all auditees, we conclude that competition and economies of scale effects in B8 firms exist across the market.
5. If $B8 = \overline{B8}$ for all auditees, we conclude that, as a minimum, a competitive market exists, with no quality or economies of scale effects.
6. If $B8 = \overline{B8}$ for small auditees and $B8 > \overline{B8}$ for large auditees, monopolistic pricing by B8 firms is presumed, with no quality or economies of scale effects.

Contradictory findings on the effects of auditor size have been presented by previous studies. In the US, Simunic (1980) found no price differences between Big Eight and non-Big Eight auditors in samples of both small and large auditees, while Palmrose (1986) and Francis and Simon (1987) found that Big Eight prices were higher than non-Big Eight prices for small auditees. Higher audit fees for relatively small companies audited by the Big Eight were also reported in Australia by Francis and Stokes (1986) and in the UK by Taffler and Ramalingam (1981).

Francis (1984), on the other hand, reported that Big Eight audit prices were significantly higher than non-Big Eight audit prices in samples of both small and large companies in the Australian market. In New Zealand, Firth (1985) and in Canada, Chung and Lindsay (1988) found no significant pricing differences between Big Eight and non-Big Eight audit firms.

Client Participation

Simunic (1980) hypothesised that substitution between external and internal audit activities was

⁶Evidence supports the view that such reputational differences between large and small firms do exist (Libby, 1979; Shockley, 1981; and Shockley and Holt, 1983). The Big Eight, prior to recent merger activity, are: Arthur Andersen, Clarkson Gordon, Coopers and Lybrand, Deloitte Haskins and Sells, Peat Marwick Mitchell, Price Waterhouse, Thorne Riddell and Touche Ross. Although Arthur Andersen is considerably smaller in Canada than some of the national firms (Zind and Zéghal, 1989), it nevertheless is included as a Big Eight firm in this analysis because of its international nature and reputation. Designating Arthur Andersen as a non-Big Eight firm had no effect on the results.

⁷Most prior studies adopt 100m in total assets (in the currency of the country under investigation) as the point that divides the small/large auditee market segments and this study follows this method.

possible. Wallace (1984) found evidence of such an effect occurring for individual companies across time in her study of 32 companies. In a cross-sectional study such as this one, with a large sample of heterogeneous firms, however, it may be difficult to detect this substitution effect. Internal audit departments engage in many activities, only some of which have the potential to act as substitutes for external audit tasks. Little is known about the determinants of internal audit costs, but it seems reasonable that such activities may be larger for certain firms because of firm- or industry-specific characteristics that require additional external audit activities as well. A bank, for instance, because of its nature (large volume of paper flow, highly vulnerable assets, and highly responsible to the public), may require relatively high internal and external audit activities, other things being equal. The two industries that prior research has shown to have specialised audit needs are those in the utilities and in the financial sectors. Therefore, these industries are controlled for in the model described below.

Although Chung and Lindsay (1988) did not detect any significant relationship between internal and external audit costs, which is consistent with the findings of Simunic (1980) in the US, this study includes a measure of internal audit costs as an exploratory variable.

The Audit Fee Model

The main audit fee model used in this study is specified as follows:

$$\begin{aligned} \text{FEE} = & b_0 + b_1 \text{SIZE} + b_2 \text{RECINV} \\ & + b_3 \text{INCOME} + b_4 \text{LOSS} + b_5 \text{SUBS} \\ & + b_6 \text{FOR} + b_7 \text{SIC} + b_8 \text{UTIL} + b_9 \text{FIN} \\ & + b_{10} \text{ICOST} + b_{11} \text{QUAL} + \epsilon \end{aligned}$$

where FEE is the natural log of external audit costs, which is consistent with Palmrose (1986) and other studies.

The control variables are:

- SIZE = natural log of auditee total assets
- RECINV = the proportion of auditee assets in receivables and inventories
- INCOME = the ratio of the auditee's net income (loss) for the year to its total assets
- LOSS = a dummy variable, designated as 1 if the auditee is operating at a loss and as 0 otherwise⁸
- SUBS = number of auditee subsidiaries

⁸A loss in the year of the observation was used as the dummy variable to obtain all of the results presented in this paper. However, to ensure that the results are not sensitive to this specification, income/loss data for the two preceding years was also gathered and some sensitivity analysis was performed. The results of this analysis are discussed in the fourth section of this paper.

FOR = number of auditee foreign subsidiaries

SIC = number of two-digit SIC classifications in which the auditee operates

UTIL = a dummy variable, designated as 1 if the auditee is in the transportation, communication and utilities industry and 0 otherwise

FIN = a dummy variable, designated as 1 if the auditee is in the finance, insurance and real estate industry and 0 otherwise.

The exploratory variables are:

COST = the ratio of the auditee's internal audit cost to its total assets

QUAL = (a) a dummy variable, designated as 1 if the auditor is a B8 firm and 0 otherwise
(b) auditor revenues.

The purpose of scaling receivables and inventories, net income and internal audit costs by total assets is to control for the relationship between these variables and size, and to be consistent with the methods used by Chung and Lindsay (1988), which will facilitate comparisons between these results and theirs. Further analysis is conducted to examine the pricing structure across years, audit firm and industry.

Methodology

Data Collection

The initial sample was drawn from Zéghal's (1989) monograph on the Canadian market for audit services. He examined 716 public and 3,654 private companies incorporated with the Federal Government of Canada. Addresses for public firms in this data set were found in the *Financial Post Surveys* and *Dun and Bradstreet's Canadian Key Business Directory*, and questionnaires were sent to 716 public companies. Of those sent, 243 usable replies were received, for a response rate of 34% (243/716).⁹

Certain characteristics of the responding firms were compared to those of firms in the original Zéghal (1989) population. On the dimensions of location, SIC codes, auditor and profitability, the sample is representative of the population from which it is drawn. The sample firms are, however, larger on average than Zéghal's (1989) population

⁹This is comparable to Simunic's (1980) 33% (397/1,207) response rate in the US market and Chung and Lindsay's (1988) 33% (233/714) response rate in Canada.

of public firms in Canada. The extent to which this difference may affect the results is indeterminable, but, in general, the firms in this sample appear representative of firms that trade on public stock exchanges in Canada. As described in the Appendix, an attempt was made to detect any non-response bias.

Firm-specific data were sought for the 243 questionnaire replies from a variety of sources. Complete data were found for 374 observations on 172 firms. These 374 observations form the core sample on which the following analysis is conducted.

The questionnaire requested the following data:

1. The name of the company's auditor.
2. The dollar value of the fees paid to the audit firm for external audit services.
3. The dollar value of the costs incurred by the firm on internal audit activities.

The above data were requested for three years: 1980, 1982 and 1984. These years were chosen because the provincial professional bodies in Canada significantly relaxed their standards of professional conduct with respect to advertising and fee tenders on audits between the period of 1979 to 1981. This change in the market forces provides an interesting opportunity to examine whether pricing became more competitive in later years. The 1980 data would represent the pre-change pricing structure, since any effect would not have occurred by that time, and 1982 and 1984 observations would capture the post-change structure. If the company was the parent of subsidiaries, consolidated data were requested so that the questionnaire data and the firm-specific data gathered from other sources would refer to the same reporting entity.¹⁰

Firm-specific data were gathered from the following sources:

1. Total assets, net income, accounts receivable and inventories were acquired from *The Financial Post's* corporate affairs microfilm and the *Corporate Integrated Information System* (CIIS).
2. SIC classification and number of operating industries were acquired from *Dun and Bradstreet's Canadian Key Business Directory*.
3. Number of subsidiaries and number of foreign subsidiaries were acquired from *Who Owns Whom: North America*.
4. Auditor revenues were acquired from *The Financial Post's* annual table on the top 25 public accountants in Canada.¹¹

¹⁰It was not possible to incorporate subsidiaries of Canadian parents as separate observations in the final sample, since firm-specific data are generally unavailable for these companies.

¹¹The *Post's* survey was for total audit firm fees, not just audit revenues, and this aggregate measure is used here to measure audit firm size. A recent survey suggests that accounting and audit revenues constitute 50–60% of the largest firms' total fees (Hancock, 1993).

Descriptive Statistics

Table 1 presents descriptive data on the variables. Table 2 presents the sample broken down by year, by auditor, by industry and by location. Since much of the following analysis splits the sample into large and small auditee segments (split at total assets = C\$100m), the data in Tables 1 and 2 are presented for these segments as well as for the sample as a whole. Since data are drawn from a period over which Canada experienced significant inflation, all dollar figures are stated in constant 1980 dollars. All subsequent analysis is performed on these inflation adjusted figures.

From Tables 1 and 2, we see that the sample includes firms with a wide range of variable values. Where the sample does exhibit concentration is in company location (45% of the observations come from firms in Ontario) and in auditor size (93% of the observations are audited by the Big Eight audit firms). Companies, on average, appear to spend twice as much on internal auditing activities as they do on external audit fees, but this statistic is misleading, because Table 1 compares the means of 197 non-zero internal audit observations, likely to be the larger firms, to the 374 external audit fee observations in the entire sample. When the external audit fees of the 197 firms with internal audit costs are examined, we find their mean external audit fee is C\$350,540. On average, firms with internal audit activities spend 44% of their total audit costs (internal plus external) on external audit fees.¹²

Results

Audit Fee Determinants/The Pricing Model

This section provides the results of applying the multiple regression model specified in the second section of this paper to the data with audit quality measured first by a B8 dummy variable and second by a continuous size measure (auditor revenues).

Among the control variables, the ones with the greatest consistent explanatory power across groups are total assets, the percentage of assets in receivables and inventory and the number of subsidiaries. The relationships between fees and these size and complexity measures are in the expected positive direction. Table 3 also reveals significant positive t-statistics for the number of foreign subsidiaries (large auditees). Since a significant percentage of companies in both segments have no foreign subsidiaries (68% and 49% for the small

¹²The firms in this sample are considerably larger, on average, than those in the Chung and Lindsay (1988) study of Canadian firms, where the comparable figures were C\$164,047 and C\$192,277 for external and internal costs respectively.

Table 1
Descriptive Statistics on Sample for the Major Variables Used in the Study (in Constant 1980 Dollars)

<i>Variable description</i>	<i>No. of observations with values > 0</i>	<i>Mean</i>	<i>Standard deviation</i>	<i>Minimum</i>	<i>Maximum</i>
Panel A: Total sample					
Audit fees	374	215,207	499,209	1,308	5,544,937
Internal audit costs	197	445,964	1,304,960	1,090	10,176,615
Total assets (000s)	374	988,796	5,067,433	562	70,972,368
Net income (000s)	374	21,060	68,262	(296,307)	633,600
Accounts receivable (000s)	354	58,041	148,993	0.8	1,003,123
Inventories (000s)	281	113,667	241,720	3.2	1,678,700
No. subsidiaries	279	7.0	9.4	1	60
No. foreign subsidiaries	171	3.5	4.1	1	22
No. 2-digit SIC classification codes	374	2.7	1.6	1	6
Panel B: Small auditees					
Audit fees	158	52,172	45,782	1,308	257,634
Internal audit costs	29	53,100	35,602	1,454	120,000
Total assets (000s)	158	39,985	28,092	562	99,600
Net income (000s)	158	1,672	3,593	(21,342)	13,884
Accounts receivable (000s)	149	5,444	6,273	0.8	28,858
Inventories (000s)	98	11,908	13,452	3.2	59,454
No. subsidiaries	103	3.2	2.8	1	16
No. foreign subsidiaries	61	1.5	0.7	1	3
No. 2-digit SIC classification codes	158	2.3	1.4	1	6
Panel C: Large auditees					
Audit fees	216	334,463	630,077	6,106	5,544,936
Internal audit costs	158	513,779	1,402,497	1,090	10,176,615
Total assets (000s)	216	1,682,834	6,588,155	100,530	70,972,368
Net income (000s)	216	35,242	37,157	(296,307)	633,600
Accounts receivable (000s)	205	112,812	183,299	883	1,003,123
Inventories (000s)	183	168,161	285,012	145	1,678,700
No. subsidiaries	176	9.3	11.0	1	60
No. foreign subsidiaries	110	4.7	4.8	1	22
No. 2-digit SIC classification codes	216	3	1.6	1	6

and large auditee segments respectively) we investigated whether the results from Table 3 hold when only those companies with foreign subsidiaries are examined. When the sample is restricted, the Table 3 results with respect to foreign subsidiaries for both auditee segments remain unchanged.

The relationship between the firms' audit fees and their profitability is not statistically significant.¹³ These results are essentially consistent with prior research. In the large auditee segment, the audit fees for companies in the transportation, communication and utilities sector are significantly lower than they are in other industries. The fact

that this relationship is not detected in the small auditee market may be due to the small number of companies (7) for that industry in that segment.

Contrary to prior research, a significant direct association between internal audit costs and audit fees is detected for large auditees. This is consistent with a complementary, rather than a substitution effect, existing between internal and external audit costs. There are, however, many observations (177) with internal audit costs equal to zero in the sample. This seems high, and it is possible many companies entered zero in this column of the questionnaire because they could not easily find the requested information, suggesting the possibility of measurement error. Chung and Lindsay (1988) found similar problems with their Canadian sample; only 94 of their 233 respondents reported a non-zero amount for their ICOST variable.

To ensure that the Table 3 results with respect to internal audit costs are not caused by these

¹³Examining three years of data on profits/losses had no effect on this result. For the 290 observations for which complete three years of data could be found, the dummy variable (LOSS) was specified a number of ways: a loss in any of the three years ($n = 44$), two consecutive losses in the three years ($n = 23$) and three years of losses ($n = 12$). The Table 3 results are insensitive to these variations. This indicator of possible auditee financial distress had no significant effect on the audit fee.

Table 2
Sample Breakdown by Year, Industry, Location and Auditor

		<i>No. of observations</i>		
		<i>Total sample</i>	<i>Small auditee segment</i>	<i>Large auditee segment</i>
A. Sample by year	1980	75	25	50
	1982	136	56	80
	1984	163	77	86
		<u>374</u>	<u>158</u>	<u>216</u>
B. Sample by industry SIC Code				
	1000-1499 Mining	108	55	53
	2011-3999 Manufacturing	114	47	67
	4000-4999 Transportation, communication and utilities	37	7	30
	5000-5999 Wholesale and retail trade	30	14	16
	6000-6799 Finance, insurance and real estate	77	30	47
	7000-8999 Services	8	5	3
		<u>374</u>	<u>158</u>	<u>216</u>
C. Sample by location				
	Toronto	87	29	58
	Other Ontario locations	77	44	33
	Calgary	87	41	46
	Other Alberta locations	8	—	8
	Montreal	46	19	27
	Other Quebec locations	6	3	3
	Vancouver	20	6	14
	Other BC locations	14	8	6
	All other locations	29	8	21
		<u>374</u>	<u>158</u>	<u>216</u>
		<i>Auditees' mean total assets</i>		
		<i>(000s-1980C\$)</i>		
D. Sample by auditor				
	Arthur Andersen	538,698	18	15
	Clarkson Gordon	782,013	63	39
	Coopers and Lybrand	411,377	53	32
	Deloitte Haskins & Sells	555,849	18	10
	Peat Marwick Mitchell	519,903	38	22
	Price Waterhouse	1,259,817	65	46
	Thorne Riddell	491,544	45	26
	Touche Ross	2,983,673	50	21
	Other	253,767	24	5
		<u>374</u>	<u>158</u>	<u>216</u>

possible measurement errors, the Table 3 audit fee model was applied to only those observations with non-zero values for the ICOST variable (29 in the small auditee segment and 168 in the large). The Table 3 results are unchanged. The ICOST variable is significant in the large auditee segment and insignificant in the small. How may this result be interpreted?

As apparent in Table 1, the internal audit costs for the larger firms in this sample are very high. The mean for the large auditee segment is C\$513,779 and the largest observation

has an internal audit department that cost over C\$10m to operate. In firms this large, the internal audit cost function is likely to be quite complex and a simple substitution effect for internal and external audit costs is not obvious. As discussed in the second section of this paper, we interpret this positive association to mean that for large companies, the internal audit cost variable may be measuring certain firm-specific factors, not captured by the other explanatory variables, that require an increase in both internal and external audit activi-

Table 3
Regression of Dependent Variable (FEE) on 11 Explanatory Variables in Large and Small Auditee Segments (in Constant 1980 Dollars)

	Small auditees (\leq C\$100m) <i>n</i> = 158		Large auditees ($>$ C\$100m) <i>n</i> = 216	
Explanatory variable	Regression coefficient	<i>T</i> -statistic	Regression coefficient	<i>T</i> -statistic
Panel A: QUAL = 1 (Big 8) or 0 (otherwise)				
INTERCEPT	2.66	2.41*	3.85	3.60*
SIZE	0.40	5.82*	0.36	7.29*
RECINV	1.13	5.52*	1.05	5.03*
INCOME	-0.63	-1.05	0.08	0.09
LOSS	0.04	0.23	0.02	0.14
SUBS	0.08	2.91*	0.02	3.01*
FOR	0.01	0.12	0.05	3.68*
SIC	0.06	1.29	0.03	0.99
UTIL	-0.16	-0.58	-0.39	-2.61*
FIN	0.07	0.42	0.01	0.08
ICOST	107.3	0.81	731.6	7.10*
QUAL	0.30	1.65	0.10	0.32
	$\bar{R}^2 = 56\%$		$\bar{R}^2 = 67\%$	
Panel B: QUAL = Auditor revenues				
INTERCEPT	2.82	2.64*	3.96	3.93*
SIZE	0.38	5.71*	0.36	7.30*
RECINV	1.12	5.54*	1.05	5.02*
INCOME	-0.54	-0.91	0.10	0.11
LOSS	0.07	0.48	0.02	0.15
SUBS	0.08	2.84*	0.02	2.99*
FOR	0.03	0.35	0.05	3.72*
SIC	0.06	1.28	0.03	1.02
UTIL	-0.12	-0.44	-0.39	-2.60*
FIN	0.08	0.48	0.00	0.04
ICOST	55.86	0.42	734.4	7.16*
QUAL	0.00	2.80*	0.00	0.11
	$\bar{R}^2 = 57\%$		$\bar{R}^2 = 67\%$	

*Statistically significant at 0.05 level or better.

ties.¹⁴ The significance of this variable in this analysis ($t > 7.00$) suggests that further study into the determinants of internal audit costs in this segment may prove a fruitful area for future research.

Chung and Lindsay's (1988) analysis on Canadian data did not detect any significant relationship between their measure of internal audit cost and external audit fees. However, their firms were, on average, smaller than those in this study, and they did not split the sample into large and small auditee segments as is done here. Since our findings appear only for the large auditee market, their research design may account for the different findings.

The regression coefficient of the quality variable is positive and statistically significant ($t = 2.93$) for the small auditees and insignificant for the large

group when the QUAL variable is measured by a continuous auditor size metric.¹⁵ This is the result described as (1) in the second section of this paper, and, based on the Simunic (1980) and Francis and Stokes (1986) discussions outlined there, is interpreted as evidence of competition and product differentiation existing across all market segments and economies of scale existing in the large auditee market. Recall that competition is assumed to exist in the small auditee market and, because the regression results are similar in the large auditee segment, we conclude that competitive pricing exists there too. The observed significance of the QUAL variable in the small auditee market is evidence of product differentiation in that market. The insignificance of the QUAL variable in the

¹⁴For example, geographic dispersion across Canada would increase company complexity but would not necessarily be captured by size or subsidiary statistics. Such dispersion would likely cause both internal and external audit costs to rise. It is likely that this, or other such factors, are driving the results here.

¹⁵To investigate whether the results are sensitive to the selection of the size mid-point (C\$100m) as the large/small identifier, the Table 3 regression was run again, defining the small and large subsets as the smallest and largest half of the observations (split at total assets = C\$188m) and using the smallest and largest quartiles (total assets < \$52m and total assets > \$575m respectively). The results remain unchanged.

Table 4
Pricing Structures Across Time (Dependent Variable FEE—in Constant 1980 Dollars)

Explanatory variable	Small auditees (\leq C\$100m) n = 158		Large auditees ($>$ C\$100m) n = 216	
	Regression coefficient	T-statistic	Regression coefficient	T-statistic
INTERCEPT	2.76	2.59*	3.83	3.81*
SIZE	0.38	5.75*	0.36	7.40*
RECINV	1.13	5.60*	1.04	5.00*
INCOME	-0.57	-0.96	-0.09	-0.10
LOSS	0.11	0.71	0.05	0.35
SUBS	0.08	2.98*	0.02	2.88*
FOR	0.02	0.26	0.05	3.65*
SIC	0.05	1.26	0.03	1.00
UTIL	-0.14	-0.51	-0.40	-2.69*
FIN	0.07	0.41	0.01	0.11
ICOST	29.9	0.23	739.9	7.22*
QUAL	0.00	2.76*	0.00	0.11
1980	0.19	1.31	0.16	1.45
1982	-0.02	-0.21	0.05	0.52
1984	-0.07	-0.72	-0.15	-1.70

For the 1982 and 1984 regressions, only the results on the dummy variables are presented. The regression results on the other variables remain essentially unchanged.

*Statistically significant at 0.05 level or better.

large auditee market is interpreted as offsetting quality and scale effects existing in that market.

The stronger QUAL result ($t = 2.93$) with the use of a continuous size variable as compared to the result with a dummy brand-name variable ($t = 1.77$) might be interpreted as evidence that the DeAngelo (1981) hypothesis (that audit firm size can be used as a proxy for audit quality) is more strongly supported by the data. One must be cautious in drawing this conclusion, however, since a dummy variable contains less information than a continuous one and individual auditor brand names could still vary in implied quality. In addition, there are only a limited number of observations in the sample audited by non-Big Eight firms (19 in the small auditee market; five in the large) and this would reduce the chances of finding a quality difference with a dummy variable approach. Nevertheless, these results suggest that it is preferable to use a continuous size variable to capture audit quality than the common Big Eight/non-Big Eight split in research of this type. Chung and Lindsay (1988) found no significant auditor effect in their study. However, their methods may again account for this difference. They used only a Big Eight dummy variable and they did not split their sample by auditee size. Since our findings appear only for the small auditee market, and only with a continuous size variable, they would be less likely to detect the relationship documented here.

As measured by the adjusted R^2 , the indepen-

dent variables are able to explain approximately 57% and 67% of the variability in audit fees for the small and large auditees respectively.

Pricing Differences Across Time

The provincial professional bodies in Canada significantly relaxed their standards of professional conduct with respect to advertising and fee tenders on audits between the period of 1979 to 1981. These changes would not have had a significant effect on 1980 audit fees but pricing may have become more competitive in later years and, to study this, the data are examined on a year-by-year basis. The regression from Table 3, Panel B was run again, adding a dummy variable that was designated as 1 if the observation was from 1980 and 0 otherwise. This regression was then repeated two more times, with the dummy variable designated as 1 if the observation was from 1982 and 0 if the observation was from 1984. These regressions were applied to the large/small auditee samples separately. The results of this set of regressions appear in Table 4. In addition, an ANOVA analysis of the external audit fees across years and the Chow (1960) test designed to test for overall pricing structure differences across years were also performed. None of the tests suggests that the change in rules of professional conduct had any effect on the pricing structure of external audit fees. When 1984 observations are compared to only 1980 observations, on the assumption that any decline in prices would be more obvious over a longer period, the t-statistics for the 1984 dummy

Table 5
Pricing Structures Across Big Eight Audit Firms (Dependent Variable FEE—in Constant 1980 Dollars)

	Mean of audit fees Total sample in 000s (ln fees)	No. of observations small/large		Groups analysed by adding dummy variables to Table 3 Panel B multiple regression	
				Small auditees Regression coefficient (t-statistic)	Large auditees Regression coefficient (t-statistic)
Arthur Andersen	92,337 (11.35)	3	15	**	-0.15 (-0.62)
Clarkson Gordon	171,793 (11.54)	24	39	0.53 (2.61)*	-0.11 (-0.58)
Coopers & Lybrand	376,681 (11.65)	21	32	0.04 (0.25)	0.12 (0.82)
Deloitte Haskins & Sells	47,999 (10.44)	8	10	**	**
Peat Marwick Mitchell	190,915 (11.57)	16	22	0.47 (2.67)*	0.26 (1.62)
Price Waterhouse	395,156 (11.92)	19	46	0.32 1.87	0.03 (0.25)
Thorne Riddell	127,807 (11.22)	19	26	-0.22 (-1.27)	0.16 (1.09)
Touche Ross	144,654 (11.03)	29	21	-0.67 (-5.03)*	-0.22 (-1.43)

*Statistically significant at the 0.05 confidence level or better.

**These results are not included because there are insufficient observations in these subsets to support the statistical analysis.

variable become -1.06 and -1.69 for the small and large auditee segments. These statistics are in the expected direction but are still not significant.¹⁶

Pricing Differences Across Big Eight Audit Firms

Since audit firms attempt to differentiate themselves from each other, and evidence of market-perceived differentiation does exist, it may be that, quite apart from quality differences, audit firms differ in their pricing strategies. Some Big Eight firms do have reputations as aggressive price-cutters and others as more conservative price-setters. To investigate this issue, the pricing structures of the Big Eight audit firms are examined individually. Table 5 presents the results of this analysis.

In Chung and Lindsay's (1988) work, Price Waterhouse had the highest audit fees (deflated by $\sqrt{\text{TA}}$), which was similar to Simunic's (1980) earlier finding in the US. Our data appear comparable initially, in that Price Waterhouse's fees are the highest of all the Table 5 firms, before con-

trolling for the explanatory variables in the pricing model (mean = C\$395,156).

The Table 3 (Panel B) multiple regression is run eight more times, with a dummy variable representing each of the Big Eight firms respectively to determine whether significantly higher or lower firm-specific fees are detectable. This procedure identifies no significant pricing differences across firms in the large auditee segment, but can detect a number of differences in the pricing of smaller audits: Touche Ross's fees are significantly lower than the others' while both Clarkson Gordon's and Peat, Marwick, Mitchell's fees are significantly higher.¹⁷ The pricing structures of the Big Eight

¹⁶The cross-temporal data was tested for heteroscedasticity by examining the 69 companies that had observations in all three years. The regression residuals in the three years are essentially the same and from this we conclude that homoscedasticity is a fair assumption with this sample.

¹⁷It might be interesting to use these fee differences to speculate on which audit firms may be compatible with each other regarding their pricing strategies. In 1989, a merger between Thorne and Clarkson Gordon was being considered in Canada but its success was viewed as unlikely by observers because of the 'significant cultural differences' between the two firms (Jeffrey, 1989). That same source speculated that Peat Marwick would make the best partner for Clarkson Gordon because of their 'similar practice style'. These comments are consistent with the pricing structures described in Table 5. Eventually, the talks concluded with Touche, Thorne and Deloitte merging, all of which have negative coefficients for five of the six entries in Table 5. The coefficients for Deloitte are negative but are not shown in Table 5 because of the small number of observations.

firms for smaller auditees appear sufficiently distinctive from each other that treating the Big Eight firms as a homogeneous group in subsequent audit pricing studies would introduce misspecification into the pricing model.

Pricing Differences Across Industries

Table 3 has already searched for pricing differences in two key industries and found significantly lower audit fees in the large auditee market for firms in the transportation, communication and utilities sector. But here we further examine industry since one possible explanation for the inter-audit firm differences documented in Table 5 is that certain firms concentrate in certain industries. Thus the industry, not the audit firm, could be driving the observed price differences. Differences in audit fees across industries may exist as a result of differences in risk from an audit standpoint or from differences in audit requirements among industries. Since audit firm concentration in certain industries has been documented in Canada (Zind and Zéghal, 1989), this possibility is investigated here. A breakdown of auditor by industry (and vice versa) indicates that, in this sample, no firm audits more than 38% of the observations in a particular industry. Most firms perform audits in five or six of the six industries in the sample. The simple correlation coefficient between industry and auditor is only 0.03, which suggests that auditor concentration is not an issue with this sample.

To more directly search for possible industry effects, further analysis is done on the mining and manufacturing industries. Analysis is restricted to these sectors because they are the only other industries with more than 20 observations in both the small and large auditee segments. The multiple regression from Table 3 (Panel B) is run again, with dummy variables used to capture each industry separately. To capture the auditor effect documented in Table 5, dummy variables for the three distinctive audit firms are added to the small auditee analysis. To summarise, first for the small auditee segment, a regression of audit fees on 15 explanatory variables is performed (the Table 3 11 variables, the three audit firm variables from Table 5 and an industry dummy variable). This was done for both the mining and manufacturing industries. Second, for the large auditee segment, a regression of audit fees on 12 explanatory variables was performed (the Table 3 11 variables and an industry dummy). This was also done for the mining and manufacturing industries.

The results of this statistical analysis show the industry variables to be insignificant. Thus we suggest that the Table 5 results with respect to inter-auditor fee differences are not due to industry effects. In the small auditee segment, the audit firm pricing differences detected in Table 3 remain. Thus the only industry we can observe with a

significant pricing difference is that of transportation, communication and utilities ($t = -2.60$) in the large auditee segment. Even when industry is controlled for, audit firm pricing differences in the small auditee market persist.

The relatively low sample sizes in these industry subsets, however, as well as the crudeness of the industry classification scheme, would suggest that prudence be exercised in drawing conclusions from the results presented here. Further study of an industry effect with larger samples and finer industrial classification would be useful.

Summary and conclusion

Prior research has investigated audit firm pricing in a number of countries, with the study by Chung and Lindsay (1988) providing a perspective on the Canadian market. Conflicting results have been documented in these studies on the issues of product differentiation and economies of scale. This study provides further evidence on these issues by examining Canadian audit fees across time, Big Eight auditor and industry.

The audit fee model, adapted from prior research, is applied to data on 172 Canadian public firms. The 374 observations are from the years 1980, 1982 and 1984. Consistent with prior research, significant relationships are observed between audit fees and variables that measure auditee size and complexity. In contrast to prior research, we detect a significant positive association between internal and external audit costs.

Our examination into product differentiation and economies of scale effects is consistent with the existence of competition and quality differentiation throughout the audit market and economies of scale effects in the large auditee market. A significant pricing difference is detected in the small auditee segment when a continuous size metric is used to measure audit quality, and a smaller and less significant difference exists when a dummy variable is used to represent the Big Eight auditors.

External audit fees for the large auditee market in the transportation, communication and utilities sector are significantly lower than in other industries. We further find that pricing in the small auditee segment is different across the Big Eight audit firms: specifically, the fees of Touche Ross are significantly lower than others and those of Clarkson Gordon, and Peat, Marwick Mitchell are significantly higher.

The observations span the period during which the rules of professional conduct were relaxing regarding advertising and fee tenders in Canada. No statistically significant evidence of differential pricing across time, however, is observed.

The findings of this study are relevant to future research in a number of ways. The differences in the results across auditee segments suggest that

such breakdowns of the sample are an essential part of audit fee research. Further, the complementary relationship documented here between internal and external audit costs suggests that further investigation into internal audit activities could shed more light on the complex audit production function. In addition, the results suggest that the large audit firms are not a homogeneous group. Evidence is provided here on both quality differences and pricing strategy differences across the large audit firms. It would be interesting to investigate whether these findings with respect to audit fees can be replicated using post-merger audit data.

Appendix

1. Test for Non-response Bias

The standard method of searching for non-response bias by comparing firms that responded to a first request to those that responded to a second request was used here. The Chow (1960) test was used to investigate whether the Table 3 regression coefficients for the 46 responses to second requests are significantly different from those of the 328 responses to first requests. The F-statistic of 2.05 indicates that, to the extent that those who respond to second requests can proxy for non-respondents, non-response bias does not appear to be a problem here.

2. Tests for Multicollinearity

In the audit fee model, the dependent variable Y is regressed on 11 independent variables ($X_1, X_2 \dots X_{11}$). The following tests for multicollinearity were performed:

(i) The first was proposed by Haitovsky (1969). In this test, we compute the ratio r_{ij}/R_y , where R_y represents the multiple correlation coefficient and r_{ij} is the zero-order partial correlation coefficients between all pairs of explanatory variables. A high value for r_{ij} and therefore a ratio $r_{ij}/R_y > 1$ represents a high degree of collinearity. Our computations indicate that there is no severe multicollinearity in the data; none of the values exceed 1.

(ii) The second is found in the statistical package used to analyse the data and follows the approach of Belsey, Kuh and Welsch (1980). The variance inflation factors and condition indices do not suggest any serious multicollinearity problems.

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Accounting for the Social Relations of Feudalism

R. A. Bryer*

Abstract—It is becoming increasingly accepted that accounting concepts and practices can only be understood in their socio-historical context (e.g., Hopwood and Johnson, 1986). From this perspective, accounting scholars can both learn from historians, and may contribute to broader historical debates. The main purposes of the paper are: to make an accounting contribution to the debate between historians about the nature and development of feudalism in England and the transition to capitalism; to illustrate the general argument that accounting concepts and practices must be understood in the specific historical context in which they occur; and to suggest that a useful conceptual framework for understanding the emergence and development of feudal and capitalist accounting is Marx's concept of the 'mode of production'.

'Marxist scholarship cannot operate as a hermetically sealed system. Not only must it absorb the positive contributions of non-Marxist scholarship but it can and should show that Marx's concept of the mode of production gives us the best tool for the analysis of the dynamic, not only of capitalism, but of feudalism' (Hilton, 1976a, p. 29).

Introduction

For many years there has been controversy amongst historians about the nature and development of feudalism in England and the transition to capitalism. Brenner (1976; 1985) has forcefully restated and supported the long-held view of Marxist historians (e.g., Dobb, 1946; Hilton, 1976) that the dominant trends were driven by a process of class conflict. Nevertheless, in the ensuing 'Brenner debate' most historians have continued to argue that demographic and economic factors were more important (Aston and Philpin, 1985), and have questioned whether it is possible to meaningfully define feudalism and capitalism in the Marxist or any other sense (Postan, 1983, p. 75).

Although medieval accounts have provided historians with a uniquely rich source of data with which to understand many aspects of feudalism, particularly the thousands of manorial accounts which have survived from the 13th century (Harvey, 1976), in this debate surprisingly little attention has been paid by historians to the relevance of the history of accounting for testing Marx's explanation. On the other hand, little attention has been paid by accounting scholars to the relevance of history for understanding accounting concepts and practices.

The relevance of the history of accounting to the Brenner debate is simply that, for Marx, the key distinction between the feudal and capitalist societies was the *way* in which *surplus* was extracted, and central to accounting is the conceptualisation and measurement of surplus. In his view, whereas under feudalism the lord's surplus was appropriated *directly*, under capitalism it is appropriated *indirectly* through selling commodities whose values contain unpaid labour. Under feudalism the surplus is *all* labour value appropriated by the lord, whether as labour services, commodity rent, or money rent. Under capitalism only *part* of the labour performed for the capitalist constitutes the surplus. Thus, for Marx, whereas within feudalism labour *rent* in its various forms was the general form of surplus, under capitalism the general form of surplus is *profit*.

These different systems of surplus extraction imply different systems of accounting. Within Marx's concept of feudalism, the mere receipt of labour value itself, less any necessary expenditures, constitutes the surplus. Here, simple revenue accounts, or what today would be called receipts and expenditure accounts, are all that would have been required to measure and report the lord's surplus. For capitalism, on the other hand, as surplus only arises from the realisation of unpaid labour embodied in commodities, from the difference between revenues and all expenses including the consumption of fixed capital, cost-based revenue-expense accounting is required.¹

For Marx, the difference between the feudal and capitalist concepts of surplus and methods of its extraction underlay both (i) the differences between

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¹It is argued elsewhere that Marx's labour theory of value analysis of capitalism is consistent with conventional cost-based, revenue-expense accounting (Bryer, 1995).

the feudal and the capitalist '*mode of production*', by which he meant both the typical methods of production and trade (the '*forces of production*'), and the system of social relationships (the '*relations of production*'); and (ii) provides the key to historical understanding. In his view, it was, 'The specific economic form in which unpaid surplus labour is pumped out of the direct producers [that] determines the relationship of domination and servitude...[and is where]...we find the innermost secret of the entire social edifice...' (1981, p. 927).

The main conclusion of the paper is that Marx's analysis of feudalism and the transition to capitalism is supported by the history of accounting in England from the 13th to the early 17th century. It is argued that, on the one hand, the evidence both supports Brenner's class-conflict analysis of the agrarian roots of English capitalism, and undermines the widespread view amongst historians that Marx did not provide a precise and consistent conceptual model which could possibly serve as the basis for explaining English economic and social history over this period. On the other hand it is concluded that feudal and capitalist accounting concepts and practices can usefully be understood as expressions of differing modes of production.

The paper is organised as follows. First, it is argued that Marx's analysis of the differences between the feudal and capitalist concepts of surplus corresponds to the differences between the concepts underlying revenue accounting, and cost-based revenue-expense accounting. Second, it is argued that the concept of surplus underlying 13th century English manorial accounts corresponds to Marx's notion of 'labour rent'. Third, it is argued that the history of accounting in England from the 13th to the early 17th century both supports and is illuminated by Brenner's analysis of the development of feudalism and the transition to capitalism.

Relevance of accounting to testing Marx's theory of feudalism and transition to capitalism

For Marx, the capitalist mode of production is characterised by large-scale fixed capital and wage-labour. In his view, the appearances of wage labour in the 13th century, and again in the later 15th century, are not the cause of the emergence of capitalism, merely its precondition. Only in the later 16th and the early 17th centuries, when labour power becomes one commodity amongst many, does the concept of 'capital' emerge as the single-minded pursuit of infinitely repeated circuits of the cash-to-cash cycle, from money, to commodities, to more money (what

Marx calls the '*circuits of capital*', or M-C-M'), and the distinction between 'constant' and 'variable' capital arise.

In Marx's view, whereas within capitalism the capital spent on the means of production, raw materials, etc., can never be a source of surplus value because the original values (costs) are simply added to the value of the commodity in the process of production, and are *constant* in value, the possibility of surplus value arises because only part of the value that labour adds to commodities is actually paid for. From the capitalist's point of view, capital invested in labour is therefore *variable* in value. Thus he calls the capital spent on materials etc. 'constant' capital, and that spent on labour power 'variable' capital.

It is argued elsewhere (Bryer, 1995) that Marx's concept of capital and these distinctions correspond to the fundamental concepts of conventional (capitalist) accounting: its notions that capital is money permanently invested with a view to profit; that costs 'attach' to products; and that profit arises from the production and sale of, in Marx's words, '... a commodity greater in value than the sum of values of the commodities used to produce it, namely the means of production and the labour-power... purchased... on the open market' (1976, p. 293). That is, after deducting the costs of both fixed and circulating capital.

By contrast, in the feudal mode of production, there is no distinction between constant and variable capital. Serfs are seen as merely a means of production: 'In the serf relation he appears as a moment of property in land itself, is an appendage of the soil, exactly like draught cattle' (Marx, 1973, p. 465). Thus, for Marx, whereas within capitalism workers are *indirectly* coerced to work for the capitalist to earn money to allow them to purchase the commodities necessary for their subsistence, within feudalism serfs produce their own commodities for subsistence and must be *directly* coerced, ultimately under threat of physical force, to go further and either work for nothing, or to produce either additional commodities and/or cash which is handed over to the lord (Marx, 1981, p. 926; Hilton, 1976, p. 14). Thus, for Marx, the 'advance' made by the transition from feudalism to capitalism merely '... consisted in a change in the form of... servitude, in the transformation of feudal exploitation into capitalist exploitation' (1976, p. 875).

Marx's analysis of the different ways in which the lord and the capitalist acquire their surplus labour has clear implications for the accounting each would require. Within feudalism, as the lord's objective is the maximisation of revenue, to account for this he would merely require receipts and payments accounts. As Marx says, the reason is that, in the ideal feudal world, in addition to their rents and other payments, serfs are required to

work for nothing, *and* to either construct the lord's *fixed assets* or bring their own:

'If we consider [feudal] ground-rent in its simplest form, that of *labour rent*, where the direct producer, using instruments of labour (plough, cattle, etc.) which actually or legally belong to him, cultivates soil actually owned by him during part of the week, and works during the remaining days upon the estate of the feudal lord without any compensation from the feudal lord, the situation is . . . quite clear, for in this case rent and surplus value are identical. Rent, not profit, is the form here through which unpaid surplus labour expresses itself' (Marx, vol. 3, p. 790).

When Marx says the serfs 'legally' own the fixed assets used in the lord's work, he means in accordance with the 'law' of labour value—in other words, because they built them. Clearly, in these circumstances, there is no need for the lord to account for depreciation on fixed capital. He need only account for the revenues of the various rents the serfs are forced to hand over, i.e., the surplus of receipts over expenditures. For Marx, therefore, within feudalism *rent* is the general form of surplus, or the feudal equivalent of capitalist profit, and for the feudal lord to become a capitalist, 'He needs only to transform his workers into wage workers and produce for profit instead of for revenue' (1973, p. 277).

It follows that evidence of different forms of accounting for surplus could provide evidence for the existence of Marx's 'modes of production'—evidence for the existence of different systems of surplus extraction, of different social relations of production. As Marx stressed, 'This change in the form in which he obtains his revenue or in the form in which the worker is paid is not . . . a formal distinction, but presupposes a total restructuring of the mode of production (agriculture) itself . . .' (1973, p. 277).

If Marx's theory is correct, the history of feudalism and the transition to capitalism in England should be mirrored by the history of accounting from the 13th to the 17th century. As we shall see, this falls into three broad stages. First, the appearance of charge and discharge accounting in the early 13th century and its later widespread adoption and development. Second, its continuation in increasingly attenuated form from the mid-14th century 'crisis' of feudalism. Third, the appearance of cost-based revenue-expense accounting from the early 17th century with the emergence of capitalist farming. However, to explain the history of manorial accounting, we must first understand the structure and content of the accounts and the concept of surplus underlying them, and also consider the views of historians.

Manorial accounts in the age of 'high-farming'

The Structure and Content of Manorial Accounts

Uniquely in England, from the late 12th century there was a marked movement away from leasing to the direct management of large estates. By 1220 it was the norm on most large estates (Harvey, 1984, p. 5). At the same time, detailed written accounts begin to be produced for these estates, which later become widespread and highly standardised. In the later 13th century, the typical manorial account had sub accounts for cash, corn, stocks, labour services and implements (Harvey, 1984, figure 2, p. 27). Each account was 'charged' with the opening balance due to the lord plus all other cash or commodities harvested, received and receivable, and 'discharged' with all necessary cash and commodity outflows incurred in running the manor and the cash payments to the lord.

Typically, the front of the account was devoted to cash transactions, the money account. First, receipts of rents, receipts from the sale of produce and livestock, money from commutation of labour services, aids, fines, etc. Against total receipts were set necessary expenses and allowances: rent allowance for the lord's official (the bailiff or reeve), allowance for vacant holdings, costs of hiring labour, repairing buildings, the purchase of livestock, corn, equipment, and finally the lord's or his official's expenses and any cash payments to him, called money liveries, the *Liberatio* (literally, the free money). The net balance, the *Et Sic Debet*, was struck by the auditors after the assessment of the *responsio* showing the sum owed by or to the lord for the period. On the back were detailed stock accounts for corn, wool, etc., in physical units, and typically an account of all the labour services due on the manor and those performed (Page, 1935, p. xi; Denholm-Young, 1937, p. 126).

What concept of surplus, if any, underlay these accounts? How can their appearance and development be explained? For most historians, either no concept of surplus, or a hazy capitalist concept of surplus, underlay the accounts, and their appearance and development is explained as an enterprising response by the lords to growth in population and markets, to the forces of demand and supply.

The Feudal Concept of Surplus

The views of historians. Given the charge-discharge structure of manorial accounts, historians have had little hesitation in concluding that calculation of surplus was not their basic purpose. For example, in a seminal paper for specialists in accounting history, Jack concludes that manorial accounts were kept in a charge and discharge form because '... the main necessity for the lord was to be able to give his servants an honourable

discharge when they had fulfilled their responsibilities' (1966, p. 155).

Their basic purpose was simply to establish the liability of the bailiff or reeve (p. 153). Manorial accounts were '... certainly not, nor were they intended to be, profit and loss accounts'. This represents the accepted wisdom. For example, in the view of Harvey, probably the leading authority on English manorial accounts, '... the entire account is directed to the single aim of establishing the state of affairs between the local official and his lord' (1984, p. 28). 'To show what profits the manor had brought the lord in the course of the year was no part of the account's ostensible purpose...' (Harvey, 1984, p. 28; see also Chatfield, 1977, p. 25; Noke, 1981, pp. 139, 142; Edwards, 1989, p. 43; Dyer, 1989, p. 28).

However, although historians see no concept of surplus in the accounts themselves, many appear to believe that insofar as the lords or their advisers had one, it was in Marx's terms essentially capitalist profit. For example, Noke sees in Walter of Henley's well-known text on estate management a '... primitive theory of income...' (1981, p. 146). Noke's point of reference here is a variant of the idea that profit is the increase in the present value of expected future cash flows (Hicks, 1946). As Marx says, this 'economic income' notion of profit is merely a distorted image of capitalist profit (Bryer, 1995).

Attempting to interpret manorial accounts from the capitalist perspective is not limited to accounting specialists. For example, although Harvey believes it was not the purpose of the accounts to show the profits of the manor, he accepts that 'At the same time the account unquestionably gives enough information for the manor's profitability to be worked out, and it is clear that manorial accounts were used for this from a very early date' (1984, p. 28). He even accepts that this may be one reason why written accounts were produced. However, Harvey merely defines 'manorial profit' tautologically: 'These profits would be the lord's net gain from the manor each year, taking into account the running costs and the value of produce delivered to his household...' (1984, p. 28). Profits *by definition* equal the net gain after running costs. The question is what these terms meant, the notion of running costs in particular. Harvey offers no direct clarification. However, insight into his understanding of the feudal concept of profit is provided by his comment that reconstruction of its calculation is 'difficult' because one of the 'many imponderables' is the amount charged for 'depreciation of stock' (1984, p. 29). Clearly, this presupposes that the cost of consuming the stock of fixed and circulating capital was an integral part of the feudal concept of surplus. In other words, in Marx's terms, that the underlying concept of surplus was capitalist profit.

Britnell also implies that lurking behind manorial accounts was an 'underdeveloped' capitalist concept of profit. For example, in his view, although accounting historians rate manorial accounts less highly than Italian commercial accounts '... because they showed less concern with the calculation of profit and did not anticipate modern commercial practice', they were just as rational. Allowance, he says, must be made for the fact that 'The calculation of agricultural profit was conceptually more difficult than anything the Italians attempted. The concept of capital is particularly problematical in an agricultural context' (Britnell, 1993, p. 117). However, the calculation of agricultural profit would only have been conceptually 'more difficult' for the lords than for Italian merchants if the lords had defined it as capitalist profit, that is, after accounting for fixed and circulating capital. It is presumably because he thinks they at least attempted this, that he concludes, 'The accounting technique available was... only partly [sic] orientated to the assessment of performance' (p. 118).

Finally, consider Dyer's view that although 'Medieval administrators understood very well *the notion of profit*, and this could be calculated from the account... as it was not the primary purpose of the document, the "profit" or "valor" total was often added as an afterthought' (1989, p. 34). How Dyer can know that medieval administrators understood 'the notion of profit', or what he believes that notion was, is unclear. However, we shall see later that there are grounds for thinking he means capitalist profit in Marx's sense.

Are historians correct that no clear concept of surplus underlay manorial accounts? What evidence is there that feudal lords in any way entertained a capitalist notion of profit? As we shall see, neither in the accounts, the scholarly works on accounting and estate management, nor in the behaviour of the lords, is there the slightest evidence of the capitalist notion of profit.

The evidence. On the basis of the descriptions provided for Christ Church Canterbury, Norwich cathedral priory (Stone, 1962), Bolton priory (Kershaw, 1973) and other manors (Postles, 1986), it is clear that the underlying and widely-accepted concept of surplus was simply the cash and commodities available from the manor for consumption by the lord and his household. Stone gives a very detailed description of the calculation of the total surplus of a manor at Canterbury, called its *profectus*, literally, the measure of its progress, increase or growth.

It consisted of '... liveries in money and kind to Canterbury *plus* other contributions to the household *plus* liveries to other manors *plus* any other contributions to purposes extraneous to the manor *plus* expenditure on improvements (as on new buildings or acquisition of land) *plus* any sum owed

to the lord at the conclusion of the account *plus* certain items of stock in hand *minus* receipts from other manors and from Canterbury and certain deficiencies of stock' (Stone, 1962, p. 28). In other words, the total consumable surplus of money and commodities produced by the manor for the lord and his household.

The calculation of the *proficuum* of Norwich cathedral priory's manors was very similar. As Stone says, it was also based on the liversies to the household, liversies of money and of produce valued at realistic transfer prices and, occasionally, included 'Balances of the current year's produce remaining in the accounting official's hands...' (pp. 28–29).² These items also clearly measured the cash or commodity equivalent delivered or available for consumption by the lord, as did the elimination of inter-manorial liversies and the contributions to extraneous purposes, the foreign or *forinsec* expenses, also clearly accounted for at Norwich.

At Bolton priory also '... profit was the [current market] value of anything produced by the demesne for a purpose extraneous to the demesne—whether in livery to the house, *forinsec* payments, stock farming expenses or improvements—from which were deducted *forinsec* receipts and the expenses of arable production' (Kershaw, 1973, p. 44). In fact, as Postles concludes, this form of calculation appears quite general. Not only at Bolton, but at Beaulieu and Osney as well, 'The main components of the calculation were the liversies of cash to the household and the value of grain and stock delivered to the household or to other manors in intermanorial livery' (1986, p. 13).

The inclusion of expenditure on improvements in the Canterbury *profectus* is also justifiable as a measure of consumption from surplus produced by the manor. Significantly, at Canterbury, building *repairs* did not contribute to *profectus*, and at Norwich 'Expenditure on improvements was noted but not necessarily included in the sum...' (Stone, 1962, pp. 28–29), presumably to indicate that this element of a manor's 'progress' was not available for current consumption. In short, on the basis of these studies, the concept of surplus underlying the accounts was the cash or commodity equivalent delivered or available for consumption by the lord and his household.

²From the evidence available in the last four years of the Register that recorded all valuations for arable products, several methods were used. Occasionally, it was the prices recorded in the manorial accounts for sales of the same commodities. More commonly, a standard valuation was used. In Stone's view, 'Whatever the method, the valuations in these years, though a little on the low side [compared with market prices], were realistic' (Stone, 1962, pp. 44–45). Although he also finds examples of unrealistically low prices, it is clear the monks knew this was the case.

Noke, however, claims it is impossible to generalise about the feudal concept of surplus (1981, p. 147). To make his case, he references the use of the term *valor maneriorum*, described in the *Gloucester Husbandry* as '... based on money income (excluding foreign receipts and expenses) plus a valuation of corn and stock not otherwise reflected in the money account (and not otherwise used for meeting necessary expenses)...'. However, this calculation is again based on liversies of money and money equivalent adjusted for foreign receipts and expenditures to give the total surplus of money and commodities available for consumption. He supports his interpretation by the comment in this work that '... some knowledgeable people have another method for calculating the true profit of a manor' as '... a warning against trying to derive any general formula for universal application...' (p. 147).

However, this comment could just as easily be interpreted as acknowledgement that there *was* an accepted concept of 'true profit'. For example, it could be saying that just as capitalist profit may be calculated using either single or double-entry bookkeeping methods, there are other 'methods' for calculating the same thing. Certainly, there were differences in the presentation of arrears (the Winchester form excluded them as part of the charge; the Westminster form included them). In the accounts themselves only sometimes did liversies in kind appear as fictitious sales and stocks as money liversies, but from the lord's point of view, these differences do not necessarily vitiate any attempt to generalise about the accepted concept of surplus. Noke overlooks the fact that calculations of profit may have been made informally from the accounts in conjunction with other information available to the lord and his officials, and that these calculations simply have not survived.

The possibility of making them is shown, for example, by Davenport's resolution of the 'special difficulty' in calculating the 'annual net profits from the manor' of the Earl of Norfolk, that sometimes the grain and stock supplied to the earl's household was not paid for and not accounted for, by calculating the value of these evident transfers using available price data (1906, pp. 43–44). It does not seem unreasonable to suppose that the lord's officials both could, and would, have done something very similar. Another example is Page's demonstration that a detailed analysis reveals as 'spurious' the apparent constancy of assized rent in the account rolls of Crowland Abbey which was the result of clear 'allocations' to other revenue and expense headings (1934, pp. 97–99).

Most of the surviving 13th century profit calculations are of the total profits of the manor, and here Noke sees a problem for the lord '... if the

profit were to be used as a guide to consumption...'. First, if profit is understood as the change in the present value of expected cash flows, to take 'rational consumption decisions' implies a concept of capital. Where there is a notion of income as consumable surplus, there must also be a notion of capital as the valuation of the expected surplus (Noke, 1981, p. 149). But Walter of Henley, in whom we have seen Noke sees a primitive notion of economic income, '... does not specify how one should value the land' (1981, p. 146)! Thus, for Noke, the puzzle that '... despite the existence of an abstract idea of profit there appears to be no corresponding underlying abstraction of capital' (p. 149). Strictly, the failure to find a concept of capital in *Walter* should not suggest that he has a 'primitive' notion of economic income, but no economic income concept at all.³ In fact, the whole idea of capital as a valuation of their property's expected future returns was alien to medieval lords because, as Oschinsky says, 'By value was then understood the annual income from the estate not its capital value; as one copyist of *Walter* commented "the land is yours and is not reckoned"' (1971, p. 69).

Second, Noke can see little use for the calculation of total profit because the final accounts did not include an appropriation account showing that '... many of the items contributing to profit during the year had in fact already been consumed, either in liveries to the household or in foreign expenses such as entertainment of other dignitaries' (1981, p. 149). On the other hand, he points out that, because foreign receipts were usually excluded from the calculation even though they were consumable, the manor's profit figure would to this extent understate the lord's potential consumption. In other words, that the calculation of profit was a measure of the *gross* and not the *net* consumable surplus available to the lord.

Concern with the net surplus available for the lord's *personal* consumption presumes that, like the capitalist, this was his objective. However, as Dyer says, '... the notion of "gross" and "net" income... cannot easily be applied to medieval estates' (1989, p. 35). Many manors paid fees and annuities to officials and the lord's supporters. For Dyer, however, here clearly seeing the world from the capitalist's viewpoint, the 'problem' arises that 'If the money was a reward for professional services to a steward or bailiff, then it can [sic] be counted as an administrative expense and deducted from the income total to give net income, that is revenue after the payment of [necessary] costs' (p. 35).

³Jack's comment that '... the idea of capital had little meaning...' (1966, p. 155), also implies acceptance that it did have some meaning, and that the lords had 'some' idea of capitalist profit conceived as economic income.

On the other hand, there were numerous payments to the lord's retinue which, while appearing as consumption, could be argued to have '... contributed indirectly to the landed estate...' (p. 35), and hence for Dyer to be necessary costs that 'can' be deducted before 'profit' is struck.

Here we can understand his claim that medieval administrators well understood 'the notion of profit'. He means the capitalist notion in Marx's sense. Certainly, if the lords' conception of surplus had been based on the capitalist distinction between productive and non-productive labour, labour which either does or does not contribute to profit, the calculation of the total consumable cash/commodities extracted from a manor would be of little use. However, there is not the slightest evidence that capitalist profit was the surplus of concern, even to the most advanced theorists of the day.

Consider, for example, Walter of Henley's analysis of the decision whether to use oxen or horses for ploughing. Although Noke sees capitalist tendencies in *Walter*'s views, it seems more reasonable to suggest that, in effect, *Walter* argues that oxen are the dominant cash/commodity flow solution. In all respects, he implies, the net cash/commodity outflows from using oxen are less than those from using horses. He points out that horses cost more to feed in winter; were more expensive to replace (he notes that although horses have longer working lives, their initial cost is greater, and oxen have a higher net realisable value), and horses had the additional costs of shoeing. Although *Walter* recognised that horses could work faster, he ruled out this advantage on the ground that the serfs responsible could not be relied upon to work them to capacity (Oschinsky, 1971, pp. 161–162). Thus, he implies, because they consumed less cash/commodities, oxen were usually the best solution.

However, it is clear from her comments on this exercise that Oschinsky also sees capitalist tendencies in *Walter*! In her view he is attempting to calculate the relative 'profitability' of horses and oxen. But she has no licence from his work to '... suggest that the annual depreciation, inevitable in the case of horses, had been allowed for as part of the otherwise exorbitant figure quoted for shoeing' (1971, p. 163)! Oschinsky neglects to say that annual depreciation was also inevitable for oxen, but she notes no excessively large cost which might be construed in the same way. 'Depreciation' is nowhere defined.

Finally, the total consumable cash/commodities interpretation of the feudal concept of surplus is supported by the widespread agreement amongst historians that the lords' objective in turning to demesne farming in the 13th century (considered in detail later), particularly the episcopal lords (Postan, 1966, p. 578), was '... simple, to maximise

revenues for an increased cash income' (Bolton, 1980, pp. 89) to finance lavish and growing expenditures on wars, luxury imports, the construction of cathedrals, castles, mansions and monasteries, and to pay increasing taxes (Postan, 1967, p. 581; Miller and Hatcher, 1978, pp. 229–231).

Consumption by the aristocratic class as a whole was the very *raison d'être* of feudal society (Dyer, 1989, p. 7). For Marx, therefore, it would have come as no surprise that, as Drew (almost alone amongst historians) has pointed out, the fact that manorial accounts did '... not attempt to give certain figures—valuation of stocks is the most important—without which profits or losses cannot be computed'; and that whether the manor was 'paying its way', was 'profitable', was something that '... did not worry the medieval landowner' (1947, p. 25, emphasis added). Instead, the lord '... demanded from a manorial *compotus* ... that it should show him the exact financial position as between himself and the official who rendered the account, and the document [was] so framed as to make this information readily available (p. 25). By financial position Drew means more than simply the final balance. He notes that the balance owing or owed from the lord from 'the reckoning' was struck *after* the *liberatio* which, as we have seen, was fundamental to the concept of surplus.

It is concluded that from Marx's perspective the real meaning of feudal stewardship was responsibility for ensuring the realisation of the maximum consumable cash and commodity surplus for the lord.⁴ In other words, responsibility for realising the greatest possible labour rent? Given their desire to read capitalist profit into the feudal mind, it is not surprising that historians often interpret the emergence and development of demesne farming and manorial accounting as entrepreneurial exploitation of the growth in population, markets and prices. On the other hand, it will be argued in what follows that the unique emergence and development of manorial accounting in England during the 13th century is more consistent with Brenner's analysis of the unique intensification of feudal exploitation there during this period.

Economic history of manorial accounting: a critique

In Harvey's view, 'The manorial account is a product of demesne farming and it is no coincidence that it appears during the first decade of the 13th century, just when this method of estate management was being generally adopted' (1984, p. 25). The central question is, did the lords use the

'regular reckoning' provided by manorial accounts to help them exploit their landed property and favourable market forces, or did they help them exploit their serfs?

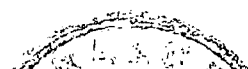
In other words, taking for granted their desire to secure the maximum consumable surplus, in deciding to switch to demesne farming and produce manorial accounts were the landlords unconsciously responding to the laws of supply and demand, 'rationally' and 'efficiently' exploiting the opportunities that the favourable markets for labour and commodities had created, managing their estates '... as speculative enterprises geared to expanding markets', exploiting '... all the *re-sources* of villein and wage labour in growing villages ...' for 'profit' (Miller, 1971, p. 2, emphasis added; see also, Hatcher, 1981, p. 14; Campbell, 1990, p. 79)? Were they acting as enterprising primitive capitalists, or were they using their superior cohesion, organisation and force, their power as individuals and as a class, to increase the direct exploitation of their serfs, the increased *direct* appropriation of their labour, as suggested by Brenner?

Why did the trend to demesne farming occur? A widely-held view is that it was the product of the rapid population increase from the end of the 12th century, and the rapid increase in prices and land values that followed (Postan, 1966, p. 552). As Harvey says, 'The coincidence between the period when estate owners were turning to demesne farming and the period of rapidly rising prices is very striking' (1973, p. 5). But does this mean, as he concludes, that, 'Given hindsight and an elementary knowledge of economics ...', 'The rise in prices ... provides a simple and straightforward explanation of the landlords' replacement of lessees by their own manorial officers in the late 12th and early 13th centuries' (pp. 5 and 9)?

The elementary principle involved here is that although economic theory would suggest that '... rent so adjusts to prices and wages as to always equal the surplus that could be earned by direct exploitation ...' (Fenoaltea, 1975, p. 694), in Harvey's view '... even if rents could be raised to new levels there would always be a time-lag in which the lessees would benefit *unduly* from the rise in prices ... and direct management was the only way to avoid this' (1973, p. 5, emphasis added).

In explaining the shift in this way, Harvey is not simply taking the lords' side, or saying that the landlords consciously decided to take what was 'due' to them: '... 12th century landlords had neither the theoretical knowledge nor the information about price trends that would enable them to see their position in these terms' (1973, p. 5). They were, he says, simply responding to market pressures and imperfections to restore the returns 'due' to them as a factor of production in accordance with the laws of elementary economics. And

⁴Just as within modern capitalism, from his perspective, the concept of stewardship means the maximisation of the rate of return on capital (Bryer, 1995).



he accepts Reed and Anderson's conclusion that, following Postan (1966), 'In the case of the manorial lord, his potential farm revenues included a return to the land which he owned and a payment for his entrepreneurial ability. We define these as rents and profits respectively' (1973, p. 134).

From around the middle of the 12th century there was a sharp acceleration towards letting manors, sometimes with all their incomes and labour services, to individual local lessees and sometimes to the local manorial tenants collectively, on fixed, long-term leases, for a money rent, and, less frequently, to produce rents to supply the lord's household. There was a tendency for these leases to become hereditary. At the same time, the money rents paid by the peasants increased as labour services were increasingly commuted and the demesnes on which they had worked contracted in size (Britnell, 1993, p. 45). Although prices were rising, and money rents lagged behind, initially the lords' income was maintained as population growth was matched by an expansion of the land cultivated, and the lords extended and increased their non-agricultural levies (Harvey, 1983).

However, towards the end of the 12th century prices began to rapidly increase as land reserves dwindled and the population continued to increase. Although a large number of manors were farmed under shorter, 'more flexible arrangements', and even long-term leases could sometimes be revised,⁵ for Harvey, the central 'difficulty' driving landlords to turn to directly managing their estates was that although rising prices made '... the established farms palpably unrealistic, it was very difficult to discover what new levels of rent would be *fair* to the landlord and lessee alike' (1973, pp. 8–9, emphasis added; see also Britnell, 1991, p. 109).

By 'fair', Harvey again means according to the principles of elementary economics—those of supply and demand. Thus, it would be 'unfair' to the lord if he got less than the highest market rent available, and 'unfair' to the peasants if the level of the rent caused the village to be 'wasted and its men harassed' (Harvey, 1973, p. 9). In neither case, he suggests, would those with scarce resources get their 'fair' economic returns. With prices and surpluses fluctuating, the 'problem' of determining 'fair rents' would be exacerbated. Thus Harvey '... can easily see how the landlord might turn to direct farming when confronted with recurrent problems of this sort...' (1973, p. 9). Unless the landlord responds to market forces to secure his

fair share of available surplus by organising its production himself, 'There would increasingly be years when the lessee did very well indeed—outrageously well from his landlord's point of view' (p. 8).

Equally, in those years, the lessee would presumably find it outrageous to have these surpluses appropriated through correspondingly higher rents. Thus, according to Harvey, an additional reason for turning to direct farming was the fact that this course would avoid '... confront[ation]... with the local resistance that would be aroused by any proposal to increase the annual farm' (1973, p. 9). Thus, he concludes, manorial accounts must be understood as a response to '... the demands of demesne farming... [whose]... effect was to give the lords of landed property a direct interest in exploiting it efficiently and profitably and thus in the techniques of management and agriculture' (1984, p. 5).

For Harvey, therefore, manorial accounts are above all the records '... of the entrepreneurs, those who were taking the initiative in exploiting the land and drawing maximum profits from the direct practice of agriculture...' (1984, p. 8).

However, while there is a clear connection between the shift to demesne farming and accounting, the economic explanation of the origin of demesne farming and manorial accounting is not convincing. First, why the appropriation of the increased surplus through demesne farming, possibly requiring evictions, with reimposed and new labour services, should have met with any less local resistance than increasing money rents, is not explained. In fact, as Hatcher says, '... exemplified in various records is the resentment and at times resistance which such reversals provoked amongst the peasantry' (1981, p. 34).

Second, and critically, demesne farming and manorial accounts were unique to England. Harvey believes that price increases 'probably' were as well, and relies on this supposedly unique correlation for his explanation. However, as Brenner says, although during the population increase in the later 12th century in England there was a shift in power towards the lords which was reflected in stable or growing demesnes, 'under the same conditions' in France there was a weakening of lordly power and shrinking demesnes (1985, p. 220). By 'same conditions' he means '... population growth[,]... rising relative land prices, rents and food prices' (1985, p. 242).

Third, as Harvey himself points out, prices are clearly not always the only relevant factor: 'The failure of the landlords' successors in the 16th century to adopt a similar policy [of demesne farming] in like circumstances meant that some of their lessees made considerable gains at their expense' (1973, p. 5). As we shall see, this 'failure'

⁵Facts which undermine the attempts by North and Thomas (1971), Reed and Anderson (1973), and others, to interpret the switch to demesne farming as a way of eliminating the so-called large costs involved in renegotiating lease contracts (Miller, 1973, p. 139; Harvey, 1973, p. 5; Fenoaltea, 1975, p. 697).

also appears to be attributable to the balance of class forces at the time.

Fourth, he suggests that short-term leases were considered 'demeaning' to potential lessees from the upper ranks of landed society, but why their psychological sensitivities should block this development in the 12th century when they did not in the 14th, when this 'social stigma' miraculously disappeared (Britnell, 1993, p. 188), is not explained.

Finally, he suggests that the landlords feared long-term leases would give tenants a legal right of control over their manors, even though the lords clearly had the power to revise or scrap them and impose demesne farming! As Harvey himself says, while the trend towards hereditary leases occurred in other parts of Europe, '... only in England was this tendency halted by the introduction of direct management of estates...' (1973, p. 7).

The causal link between manorial accounting and demesne farming more plausibly runs the other way round, that is, the need for manorial accounting created the need for demesne farming. In other words, the key difficulty faced by the lords in extracting the maximum possible surplus was not their lack of power, or their desire to avoid confrontation through increasing rents, but their lack of *reliable information* and the detailed control which this implied. Not information about contemporary price trends, as Harvey says, but about the maximum surplus available for consumption by the lord. If the lord took too little it would be 'unfair'. If he took too much the source of his wealth, his peasants, would be 'wasted'. To extract the maximum possible surplus it would first have to be measured, and this implies either: control of the production of the surplus 'due' to the lord from his share of the land and the associated necessary labour; or that all lessees produce accounts for the lord revealing the maximum surplus available—clearly a ludicrous prospect in the light of widespread illiteracy, and the administrative resources that would have been required.

Although, as Miller and Hatcher say, a rapidly growing population, fixed amounts of land, rising prices and falling real wages '... were among the conditions which, throughout the century, made large-scale demesne production both possible and profitable' (1978, p. 52), they accept that these conditions do not explain why the lords took to their demesnes. As Miller admits, a central difficulty with explaining this simply in terms of favourable economic circumstances is that, in spite of political turmoil, the 12th century was also a period of economic expansion and rising prices, and yet the lords turned more and more to leasing (1971, p. 7). To explain the move to demesne farming he turns, as do most historians, to the argument of last resort: 'What may have originally been a defensive action on the part

of landowners... was transformed into a more positive entrepreneurial attitude' (1971, p. 12).

An alternative explanation is that the introduction of demesne farming and manorial accounting were part of a conscious attempt by the lords to increase the direct appropriation of labour rent. This was a strategic response to the opportunity presented by a growing population, increasing prices and the development of markets, to increase the direct appropriation and realisation of surplus labour as commodities and cash. Evidence supporting this interpretation has already been presented: the nature of the surplus calculated from manorial accounts.

Although according to economic theory the lord's 'profits', defined as 'a payment for his entrepreneurial ability', are not 'observable in available records' (Reed and Anderson, 1973, p. 134), profit defined as revenues minus costs *should* be observable if, indeed, it was capitalist profit that had motivated the change to direct management. If the landlords had been concerned with exploiting markets, rather than their serfs, we should expect to see in their assiduously prepared accounts at least some attempt to calculate the cost of production. We do not. Instead, we see an overwhelming preoccupation with the surplus cash and commodities available for consumption, with Marx's labour rent in its various forms.

From Marx's perspective, as feudal surplus was directly 'coerced' from the peasants, the emergence and development of demesne farming and manorial accounting should be understood in the context of the lords' changing relative power. From this point of view, the earlier trend towards leasing could be explained as a consequence of, as Brenner puts it, '... the temporary disorganisation of the feudal class during the civil wars of King Stephen's reign [which] was accompanied by the significant peasant gains of the middle of the 12th century...' (1985, p. 257), particularly the gains from commuting labour services and paying at least potentially sticky money rents. And the trend towards demesne farming and manorial accounting may be explained as a reflection of the '... restrengthening of the monarchy during the latter part of the 12th century [which] seems to have been reflected in the reconstruction of lordly power over peasants from about the same time' (1985, p. 257).

Consistent with this interpretation, the emergence of demesne farming and manorial accounting were accompanied by the rapid reimposition, redefinition and increase of labour services (Hilton, 1965, p. 13). Significantly, however, the evolution in English law giving to the lord the right to override local customs was not mirrored by similar developments in northern France, even though economic conditions were identical. In England, labour services could be extracted either in labour or in money rent 'at the lord's choice'

(Postan, 1966, p. 606). Many English lords used the ambiguity of their rights to labour services to increase their rents by demanding high labour services when they were not required, and then choosing to commute them to money rent (Postan, 1966, p. 607; Britnell, 1993, p. 112).

Sometimes labour services were routinely collected as money rent and repaid for any work which the lord required (Hilton, 1966, pp. 139–140). By the end of the 13th century around one third of the labour for demesne farming in England was provided through labour services (Harvey, 1973, p. 21). Villeins were also liable to make a wide range of other payments, all of which significantly increased during the 13th century (Postan, 1966, pp. 552–553; Miller and Hatcher, 1978, pp. 48 and 129; Britnell, 1993, p. 111).

As we shall see in the following sections, there is a striking correlation between the histories of demesne farming and manorial accounting, and the history of the class struggle between lords and peasants. In Brenner's view, the key determinant of this struggle in England was the full mobilisation and effectiveness of lordly power. In addition to the build-up of a larger and more effective military organisation, the unique basis of the English lords' power was '... a *qualitative* process requiring the increasingly sophisticated self-organisation of the feudal ruling class' (Brenner, 1985, p. 239). It is argued that central to this process was the emergence and development of manorial accounting, and with it 'the necessary army of administrators' (Dyer, 1989, p. 37). In short, that this unique development in England both expressed '... the superiority of English lords as extractors of a surplus from their peasants[, ... their superior self-organisation ...]', and made an important contribution to their '... construction of stronger surplus-extracting machinery.' (Brenner, 1985, pp. 254, 238).

Towards a social history of manorial accounting

The history of demesne farming and manorial accounting falls into three broad phases. First, the initial introduction of accounts during the first half of the 13th century in a system of centralised control. Second, the proliferation and standardisation of manorial accounts, and greatly intensified auditing from the later 13th century as key elements in a system of decentralised control. Third, the attenuation and adaptation of the system from the second half of the 14th century to the middle of the 16th century, from when the term manorial record came to denote not the accounts, but the proceedings of the manorial court (Harvey, 1976; 1984). As we shall see, these phases closely correspond to the changing phases of the class

struggle between the lords and the serfs analysed by Brenner.

Phase One: Emergence of Manorial Accounting and the Imposition of Centralised Control

Taking direct control of the lord's demesne required a managerial revolution, particularly on the larger estates, to plan, control and co-ordinate production and marketing on scattered lands. Estate management became centrally controlled and supervised through a hierarchy of receiver, auditor, steward, bailiff and reeve. The bailiff was the professional farm manager, a free layman or a clerk in minor orders responsible for the general management of the estate and linking together scattered manors. The reeve, usually chosen from amongst the wealthiest villeins, was responsible for organising the day-to-day work on the demesne, seeing that labour services were performed and all dues and rents were collected, issuing the tallies, and sometimes making weekly or monthly reckonings, although the final accounts were invariably prepared by a professional scribe (Levett, 1927, pp. 67–68; Harvey, 1976).

As techniques were primitive and all operations labour intensive, mobilisation of mass labour was the 'essential managerial role' (Bolton, 1980, p. 90). In fulfilling it, the reeve was supported and controlled by an 'apparatus of officialdom', an important element of which was the manorial court which enforced the payment of dues and labour services and the officials' obligation to act in the lord's interest. The lord's steward acted as judge; his bailiff as prosecutor; the court often participated in the audit (Miller and Hatcher, 1978, p. 195).

Following the example of the audit boards of the episcopal estates, the big lay estates were administered by officials of baronial councils (Postan, 1966, p. 579). On most of them, there were groups of auditors and other legal and agricultural experts who, in association with the steward, acted more or less as the lord's deputy, formulated and implemented the policy for the estate, decided stocking levels, fixed the targets for each manor, and decided whether it was more profitable to lease than to directly manage (Miller and Hatcher, 1978, p. 189; Bolton, 1980, pp. 93–94).

Recognition that the origin of the lord's surplus lay in directly appropriated labour rent, and not capitalist profit, is suggested by the insistence in the *Seneschauuncy*, a popular work on estate administration thought to describe typical early practice, that 'The principal duties of bailiff and reeve were the supervision of work and workers on the manor and the collection of the data for the account' (Oschinsky, 1971, p. 95). Detailed instructions on supervision are given for all aspects of the work of the manor. The reeve was required to record labour services as they were performed and

account weekly for them to the bailiff. At the end of the financial period both bailiff and reeve were responsible for accounting for labour services rendered or commuted into money. As the author of *Fleta*, a conflation of *Walter* and the *Seneschauncy*, explained: 'Profitable and successful accounting depended ... on the qualities and behaviour of the manorial staff and the lord' (Oschinsky, 1971, p. 99). In other words, their effectiveness in extracting labour rent?

In Britnell's view, 'If we take a diagnostic definition of capitalism that hinges on the employment of wage labour in units of production [i.e. demesne farming], the rural economy was more capitalist around 1300 than it was two centuries later. If we define capitalism by reference to a spirit of calculation and rational organisation the same conclusion would follow' (1993, p. 228). However, even though there was widespread employment of so-called wage labourers, particularly from the middle of the 13th century, who accounted for almost a third of the rural population (Postan, 1966, p. 568), as Kosminsky says: 'The 13th century agricultural labourer was often not a free man, or if he was free the distinction between him and the unfree was not great ... He was burdened with dues of a feudal character; he usually rendered some small labour services ...' (1956, p. 306). 'Wages' were predominantly paid in food, the amounts of which often decreased as prices increased (Postan, 1954, pp. 29–30; Miller and Hatcher, 1978, pp. 51–52). In fact, so-called wage-labour was often costless to the lord, merely commuted labour services reacquired at a profit (Brenner, 1985, pp. 234–235).

The economic interpretation of the introduction of demesne farming is also undermined by the consensus amongst historians that the 13th century was in no sense '... an age of large scale capitalist exploitation of land, of increased production due to both increased investment and improved techniques ...' (Bolton, 1980, p. 97). There was little saving, and little expenditure on the means of production. 'Even among "high-farmers" ... the rate of saving was apt to be relatively modest ... and most of those with the largest resources on the whole preferred consumption or hoarding to investment' (Miller and Hatcher, 1978, p. 62). Most of the colonisation effort had been borne by the peasants (1978, pp. 39–40; 56), and although many labour services were commuted to money rents, the obligation (supposedly voluntary) to provide 'boon' works for ditching, dyking, building, carting, ploughing and harvesting, all those tasks requiring relatively large amounts of fixed capital, were invariably retained for demesne farming (Postan, 1966, p. 607; Hilton, 1966, p. 135).

Furthermore, the lords' income from demesne farming was never the most important source. Money rents, court fees and aids continued to form

probably the most substantial part of total revenues (Postan, 1966, p. 579). For most of the 13th century, these incomes increased in line with the increase in prices (Miller and Hatcher, 1978, p. 237). Even in the ideal-typical Benedictine abbeys the major source of money was rents and other such payments from tenants (Postan, 1966, p. 577).

In short, the introduction of manorial accounting following the switch to demesne farming is consistent with an intensification of feudal exploitation, and is inconsistent with any interpretation which supposes that the lords were behaving as primitive capitalists. The lords did not attempt to maximise profits by reducing costs. As Brenner says, '... even to the extent that the lords did attempt to maximise production for exchange, their relations with their tenants tended to induce them to try to do so, not through the application of fixed capital and increased skill to improve labour productivity, but through the intensification of peasant labour, the increase in levies in money or kind on the peasant producers ...' (1985, p. 234). And they did not sell the surplus commodities from their demesnes on freely competitive markets (Britnell, 1993, p. 10). The lords took formal, legal control of markets in the 12th and 13th centuries in step with the '... growth of the king's power to enforce it' (Britnell, 1993, p. 19), which depended in turn on the growth of seigniorial power more generally.

In phase two of the history of manorial accounting this process of intensifying feudal exploitation itself intensified as the system was developed and more vigorously applied.

Phase Two: Development of Manorial Accounting and the Intensification of Feudal Exploitation

Towards the end of the 13th century there was a final surge in prices and, with now roughly a third of the land worked in demesne, the lords 'decentralised' their system of estate management. Between 1240 and 1315, the area under direct management peaked, but individual manors remained small, rarely covering more than a few hundred acres each (Britnell, 1993, pp. 115–116). From Brenner's perspective it is argued that, although population growth, prices and rents levelled off in the early 14th century, the lords' appetite for cash continued to grow, and the new system was used to redouble the lords' efforts to extract the maximum possible consumable surpluses from their demesnes. As Brenner says '... in order to maintain or increase their income, in the face of falling population, the lords tended to be obliged to attempt to extract a greater amount from each peasant ...' (1985, p. 224).

From the 1270s the production and audit of uniform manorial accounts rapidly proliferated, and the hierarchy of control was streamlined

(Postan, 1966, p. 582; Harvey, 1984, p. 31). Stewards were confined to the manorial court; bailiffs with oversight of several manors were removed; the auditor's role was expanded and, although the official in charge of individual manors was given little direct supervision, he was subject '... to searching financial scrutiny once or twice a year' (Harvey, 1984, p. 6). Accounts became longer and fuller and there was more and more detailed and searching scrutiny at the audit (Harvey, 1984, p. 34). Books were written on estate management and accounting to educate the growing ranks of professional estate administrators, auditors and lawyers (Oschinsky, 1971), and grammar schools opened to educate future accounting-clerks in basic clerical Latin (Britnell, 1993, pp. 80–81). At the end of each manor's financial year, the bailiff was charged with the detailed list of revenues, and discharged with payments which the highly inquisitive and powerful auditors judged to be necessary. In addition, Walter of Henley recommended that the auditors take a half-yearly *view* of the accounts (Oschinsky, 1971, p. 188).

In Harvey's view, '... only in the late 13th century were accounting techniques developed to the point where it became possible to relax this continual supervision and give greater freedom to the manorial officer who would answer for his actions simply in the searching scrutiny of the annual audit' (1973, p. 11). On the other hand, he says it was a failure. The new management system, he says, '... left the lord very much at the mercy of a clever or [and?] unscrupulous local official' (1984, p. 6). Was it developments in accounting *techniques* that prompted the change, or the objective to increase the rate of exploitation?⁶ How much control did the new manorial accounting system give over the direct appropriation of surplus labour? A popular view is that the trend away from demesne farming to leasing, particularly after 1370, was in part encouraged by its failure to provide effective control (Postan, 1966, p. 581). But, if this was so, why did it take some 100 years of experience with the system to convince the lords that it provided no effective control? As we shall see, an alternative explanation is the growth in peasant power.

The basis of 13th century estate administration was written surveys informing the lords of their resources (Oschinsky, 1971, p. 67). The most important of these was the *extent*, a development from the earlier surveys of the manor's lands and stock, and the customals of tenants and services they owed (Lomas, 1978–81, p. 266). The widespread use of highly-standardised extents coincided

'... very closely with the so-called period of high demesne farming of the 13th and early 14th centuries' (Lomas, 1978–81, p. 270) and, we shall see, they played a major role in estate management during this period. The difference between an extent and the earlier surveys was that the extent was a detailed description of every building and piece of land on the demesne, every labour service, every produce rent, the amount of seed per acre and the stock the manor should support, and a 'valuation' showing '... the yearly income from the estates [which], as Walter of Henley observed, indicated to the authorities of the estates the limits of their outgoings which ought not to be exceeded by prudent lords' (Oschinsky, 1971, p. 69–70). However, *Walter* also saw a wider role for the extent in estate administration, the central pre-occupation of his work. As he put it, '... by the extent you may understand how much your ... landes be woorth by yeare; whereupon also you may order youre life ...' (Oschinsky, 1971, p. 313).

Exactly what role did the extent play in 'ordering' the life of the lord? In Lomas's view, the unprecedented administrative efficiency at the manorial level in England in the 13th and early 14th centuries owed much to the extents, '... very full documents which enabled far more than the values of the various manors to be obtained'. As we shall see, their development and use as an integral part of the accounting system strongly supports his conclusion that the manorial extent '... might well be a symptom of the exploitation of the poorer classes by the landowners ...' (Lomas, 1978–81, p. 271), and that this was its value to the lord.

To understand the role of extents in intensifying the rate of exploitation, it is necessary to understand what was generally meant by this 'yearly income' or 'woorth by yeare' recorded as 'value' in the extent. While historians suggest that these values were the annual amount for which the item could be leased, which would typically be *less* than the expected surplus (Harvey, 1984, p. 21; Noke, 1981, pp. 146–147; Oschinsky, 1971, p. 219), for *Walter*'s injunction to make sense, the values in the extent, the lord's 'annual income', would have to be the *expected or target annual cash surplus* to the lord.

What *Walter* says is: 'If youe may youre landes amende above the yearly extent putte that overpluis into money ... If you dispende yearely the value of your landes and the emprovement also then theise (mischaunces) come upon you you have no recoverie but by borrowing' (Oschinsky, 1971, p. 309).

As Oschinsky says, the essence of *Walter*'s advice was that 'Any additional profits accrued in some years ought to be set aside to make good losses that might be incurred in bad seasons' (1971, p. 154). This clearly assumes 'overpluis' and

⁶In 1984 he is more cautious: 'It *may* have been improved methods of accounting that made this change possible ...' (p. 6, emphasis added). He does not say which improvements he has in mind.

'mischaunces' would cancel out through time, which implies that the valuations in the extent were set at their *expected value*. Thus, presumably, his injunction to consume 'no *higher* at alle', and therefore only the surplus if it was below the expected value, and only the expected value if the surplus exceeded it. Not, as Noke says, the consumption of the valuation in the extent come what may (1981, p. 146). Given an inelastic demand for food and that prices varied more than proportionally to output, under realistic scenarios, even consuming the annual surplus would have quickly led the lords into debt (Banaji, 1976, pp. 307–308).

To understand the role of the extent in estate management in practice it is important to recognise, as Drew points out, that it was common practice, and insisted upon by both *Walter* and the author of *Hosebonderie* (Husbandry), both popular texts of the day, that the reeve and/or bailiff or, if their assets were insufficient, the whole body of customary tenants, was held accountable for *any shortfall compared with the target return expected and demanded*:

'... [C]ome what may, the lord must suffer no loss, whether from fraud, negligence, error of judgment, or even from some of the ordinary hazards of agriculture. It is made clear that, if anything goes wrong, somebody has got to pay the difference between what the lord actually received from the transaction in question, and *what he would have received if all had gone well...*' (Drew, 1947, p. 20, emphasis added).

Collective accountability for lordly dues was widespread throughout Europe (Bloch, 1962, pp. 130–131). What was unique in England was that by the middle of the 13th century it was customary to set for each manor '... what nowadays we should call a "target", fixing the return which the land or stock was expected to produce having regard to the amount of seed sown, the number of sheep shorn, or the numbers of breeding stock maintained' (Drew, 1947, p. 20). If the target was reached it was *plena responsio* and all was well. If the target was not reached, then it was *mala* (or *insufficiens*) *responsio* and the official was liable to pay in cash the amount of the deficit (p. 28).

Although the vigour with which the auditors implemented the system at St. Swithun's varied over time, it was usually taken very seriously. By the beginning of the 14th century St. Swithun's had, in effect, a sophisticated system of budgeting in which '... each year some man or men had to decide the rate at which the *responsio* should be fixed for each sort of crop on each manor...' (Drew, 1947, p. 32). The *responsiones* entry for particular items of corn and livestock was widely found in early 14th century accounts (Harvey, 1984, p. 34).

Although Drew calls this system 'very arbitrary', he means it was not capitalist: 'It was, in effect, as though a modern employer should say to his farm-foreman, "You ought to have got 5s. more for that pig you sold, and I think you might have had that tractor repaired for 15s. less than you said you paid. I shall deduct a pound from your next wages"' (1947, p. 40). Apart from any indignation the free worker might feel at being asked to be responsible for the realisation of the capitalist's profits, the farmer's demand would only be 'arbitrary' if he had no evidence to support it.

However, in this sense the actions of the audit board at St. Swithun's were far from arbitrary. They were, for example, '... closely in touch with price fluctuations [and] ... woe betide the official who had sold any wheat at 6s. a quarter when the market price was 6s.4d.—he was immediately surcharged with the difference' (1947, p. 24). Thus, although Harvey is right that 'The historian forgets at his peril that the purpose of a manorial account was to establish a state of reckoning between lord and official', it is misleading to add that '... we should never take it for granted that it records what actually happened on the manor' (1984, p. 34). While from the perspective of capitalist profit measurement the accounts may not have recorded 'what happened'—the net profit realised from *production*—from the perspective of feudal rent, the manorial accounts did record 'what happened'—the direct appropriation of the maximum possible consumable surplus.

A forecast or required consumable cash surplus interpretation of extent valuations is also supported by the calculations performed at Norwich cathedral priory segregating the surplus from arable farming, called *wainage*, from the surplus from livestock. Up to the 1280s, the calculation began by deducting from total manorial *pro-ficuum* those items not directly concerned with farming, such as rents and the surplus from the courts, mills and tithes. From the 1280s it went on to deduct the net surplus from livestock, wool sales, leasing the cow herd and meadow pasture, and commuting customary labour services (Stone, 1962).

As a measure of the cash surplus from arable, the calculation is straightforwardly understandable: from total net cash flow are deducted the actual and potential net cash flows from all other sources. The balance was then compared with either: the extent to assess the cash flow performance of demesne arable and livestock in demesne, the result being interpreted as '... a figure either "*ad commodum ultra predictam extentam*" or "*in perditione predictae extente*"' (Stone, 1962, p. 34)—in other words, the cash surplus actually available for consumption was either greater or less than the cash surplus predicted in the extent; or the net cash flow was

compared with the potential rental to assess its performance against the leasing option.

This practice also appears elsewhere. As Ker-shaw says, 'Comparisons of profits and extent were made at Norwich and recommended in a 14th century St. Albans treatise . . .', and surmises that it was also the practice at Bolton priory (1973, pp. 44-45). Stone cites one case at Norwich where the comparison is clearly implicit in the notes on a *profectus*; references evidence of its use in Worcester (1962, p. 46), and goes on to examine the financial logic of William of Kirby's policy of concentrating on demesne farming in these terms: '... suppose that in 1287 William had compared the profits of wainage from individual demesnes in the last six years with the combined value of demesne arable, meadow and pasture as declared in fairly recent manorial extents: in three of the four cases in which we may know the answer, profits exceeded valuation, taking the rough with the smooth' (1962, p. 41, emphasis added).

The realism of the targets in the extent would depend on how often they were updated. This could either be done formally or informally. For example, although at Norwich cathedral priory the valuations in the extents were only 'occasionally' altered, those used in the evaluation of the surplus from arable and livestock '... were not always the same as those in the current manorial extents: . . .' (Stone, 1962, p. 34). Whether the extent was formally changed or interpreted by the auditors in the context of current prices and other relevant information, only if it was based on the expected surplus would it '... enable the lord or his steward to check the work of the manorial officers and servants: whether they had managed the lands profitably, had accounted for the seed corn and cost of ploughing correctly, whether the manor was stocked to capacity, and whether the yield from stock farming came up to expectation' (Oschinsky, 1971, p. 156).

From the early 14th century the counterpart to the manorial extents in the lord's central administration was the valor, on the one hand a counter-roll with summary details of the local accounts, and on the other '... more important and significant... was the desire of the landlords to determine the amount of profit or loss they made or expected to make from their estates, both individually and as a whole' (Davis, 1968, p. 214, emphasis added). In combination with the account of arrears, the valors could be used to compare the yield of different years, the surplus from demesne farming could be assessed, and the overall gross surplus estimated (pp. 215-216). Armed with this information the lord could strategically employ his power to ensure he secured a 'fair' return.

If the values in the extent are interpreted as expected or demanded consumable surplus, and

not as a fixed annual rental, lack of control is not implied by the fact that '... provided standards were met and there were no obvious inconsistencies... the auditors were satisfied' (Noke, 1981, p. 145). Certainly, as with any accounting system, this left room for fraud. But even though at St. Swithun's, for example, 'It is impossible to look through these rolls, so often full of auditors' corrections from end to end, without realising that on many manors a battle of wits was going on all the time [which]... was by no means one-sided' (Drew, 1947, p. 40), there seems no reason to suppose that the costs of successful 'wrangling' and those of auditing exceeded the benefits of the system.

Although even on well-run estates the battle between the auditors and the manorial officers may not have been one-sided, the expertise and legal sanctions available to the lord inevitably meant it was biased in his favour. For example, at St. Swithun's, as was customary at religious houses, the audit board had access to expert advice on agricultural practice and appeared to effectively run the manors (Drew, 1947, p. 24). Books were written to teach auditors the typical wangles to look out for (Oschinsky, 1971, p. 461). When the account roll went to the monastery '... the auditors went through it item by item, passing one, surcharging another, disallowing a third, running their pens through the scribe's figures and inserting their own alterations. They then added up the account as amended and filled in the cash totals' (Drew, 1947, p. 25).

Furthermore, although the bailiffs and other officers were freemen and therefore outside the jurisdiction of the manorial court, chapter XI of the Statute of Westminster II of 1285 required the production of accounts and gave auditors the '... authority to commit fraudulent bailiffs and officers who owed money to their lords, to the nearest royal prison' (Oschinsky, 1971, p. 72). By implication the law required the accounts to be of sufficient quality to pass inspection in any litigation (p. 73).

At St. Swithun's, the level of auditor vigilance varied through time (Drew, 1947, p. 24). The periods of maximum vigilance correspond to Brenner's periods of particularly intensified exploitation in the early and middle 14th century, and appear to be typical (Harvey, 1984, p. 34). At St. Swithun's, 'About 1318 a change began; things were tightened up all round and it was then, in a 10-year burst of maximum auditorial activity, that the system assumed its definite and lasting shape' (Drew, 1947, p. 28). Detailed targets that had been set regularly from the 1260s were now set and rigorously enforced for all demesne activities. The spur for this tightening of the accounting system appears to have been the fact that around this time the lord's revenues from their estates '... began to

fall for the first time in the known history of the class' (Dyer, 1989, p. 27).

About 1350, a further tightening occurred, again as the lords' income became threatened. '[T]he audit, by increased vigilance, tried to compensate to some extent for reduced income. Grain *responsio*, in particular, was stepped up and from now onwards we find it being enforced more and more frequently' (Drew, 1947, p. 34). The effectiveness of this more rigorous approach to accounting may help to explain why, as Brenner says, '... contrary to what the demographic interpreters might lead us to expect, population drop-off in England after 1349 did not in many places bring about an immediate, corresponding decline in levies' (1985, p. 270) and in the lords' income. Although in the event, the lords were helped by the fact that rents and cereal prices also held up against expectations (Dyer, 1989, p. 42), another reason may have been the effectiveness of '... increasing seigneurial extra-economic pressures on and controls over the peasants...' (Brenner, 1985, p. 271). It is suggested that central to this was the intensification of accounting control.

Phase Three: Dissolution of Feudalism and the Decline of Manorial Accounting

By 1400, leasing was again the norm for managing large estates. This trend also correlates with declining population and prices. In spite of a determined seigneurial reaction, real wages increased and the surplus from demesne farming fell. Harvey suggests that a falling level of prices could explain the change back to leasing in exactly the same way that the shift to demesne farming is explained by an increasing level of prices (1973, p. 9, footnote 26). But why price fluctuations, which trend upwards, should persuade the lords to turn to demesne farming to secure their 'fair' returns, whereas price fluctuations with a downward trend persuaded them to turn to leasing, is unexplained. As is Dyer's view that whereas from the late 12th century the 'anxiety' about their incomes when prices were rising caused the move to demesne farming to 'stabilise' them, in the late 14th century, in the face of falling prices, they chose to 'stabilise' their incomes by changing to leases to remove the 'headache' (1989, pp. 27; 42). A factor ignored in this explanation is that '... by the early part of the 15th century the seigneurial reaction had failed, broken by peasant resistance, as well as peasant mobility... The lords could extract only much lower, now basically economic, contractual rents' (Brenner, 1985, p. 272).

By the 15th century, labour services and customary renders had largely been commuted to money rents which fell to their lowest at this time (Britnell, 1993, pp. 191; 194). This shift in the balance of power is reflected in the accounts which, although normally still presented by the lessee, are much

more varied, informal and brief, containing usually only the annual rent (Harvey, 1984, p. 35). From Marx's perspective, that social relations nevertheless remained feudal is indicated by the fact that the accounts continued in charge-discharge form, that is, continued to record the extraction of labour rent, and they continued to be audited. Harvey, however, suggests that the landlords '... played a passive part and... simply drew their income from rents' (1984, p. 8; see also, Glennie, 1988, p. 15).

That there had been a shift in the *balance* of power, rather than the abolition of feudal power, is suggested by the long 'petitions for allowance' that now appear in the lessee's accounts after the first balance produced at audit when '... the real business of investigation and discussion began' (Harvey, 1984, p. 36). The mere fact that there was 'investigation' and 'discussion' suggests that, although the balance of power had shifted, rents were strongly contested from *both* sides. As Dyer says, throughout the 15th century there was 'hard bargaining' as leases came up for renewal, the peasants pushing for reductions in their rents, but the lords pressing for their maintenance or for increases (1989, p. 42).

Far from passively drawing their rents, on very large estates, as Harvey himself points out, the predominance of leasing '... gave added importance to the lord's council, which decided the forms and terms of the leases' (1984, p. 7), one of whose functions was to scrutinise the accounts of lessees which, as in the early 13th century, were again enrolled after audit as a record for its central administration (1984, p. 37).

While the importance of the lord's auditor was reduced, that of his receiver (or treasurer) increased. Central to the receiver's role was the *valor* which now typically concentrated on calculating the cash surplus (Davis, 1968, p. 216), but sometimes continued to show '... how much each manor could be expected to provide each year... and some lords had them compiled every year as a current guide to their financial resources' (Harvey, 1984, p. 38). Although detailed extents were no longer widely produced, they did not die. Some lords continued to have them compiled (Lomas, 1978-81, p. 270), but typically they were transformed into *terriers*, detailed descriptions of lands, and *rentals*, lists of the tenants and the amounts of rent and/or produce due (Harvey, 1984, p. 22). Thus, even though after the leasing of the demesnes the administrative effort became focused on monitoring relationships between lords and peasants, the intensity with which this was done meant that the numbers of administrators remained largely as before (Britnell, 1993, p. 206).

Although the lord's officials cannot often have had access to detailed lessees' accounts to allow them to directly assess the maximum surplus available for rent, after many years' recorded experience

with the lands, and the fact that they were required to 'appreciate the prevailing circumstances of trade' (Britnell, 1993, p. 197), they would have a good idea of what this should be in any given year. As Davis says, 'It is clear that most baronial landowners had a far clearer idea by the end of the 14th century than ever before how much cash surplus they could expect to collect from their estates: their auditors had evolved the valor and the arrears account for precisely that purpose' (1968, p. 218). Furthermore, during his twice-yearly audits of the local manorial official, part of the auditor's duties was to '... draw up a new rental if necessary, and in general keep an eye open for the lord's profit', and the lord's financial affairs at the local level were under the continual scrutiny of his council (Davis, 1968, p. 222; see also, Britnell, 1993, p. 197). In Davis' view, with 'tough-minded' councils 'always with an eye open for any extra income', such as that at the Duchy of Lancaster, it would be 'most unlikely' that it would '... allow any substantial share of its potential revenue to remain untouched' (1968, p. 223), or for the demesne to deteriorate or the lord bear any unnecessary costs through the lessee's negligence (Du Boulay, 1965, pp. 446-448). Thus, as Britnell says, but does not explain, 'To some extent landlords could safeguard their position by leasing their demesnes' (1993, p. 188).⁷

Perhaps it was the strategic edge provided by their methods of 'careful supervision', central to which was their system of accounting, that enabled them to so 'moderate the effects of an economic tide' that, even though there was catastrophe all around them, '... most lords [only] experienced a pronounced but not a catastrophic fall in manorial income in the adversities of the later middle ages...' (Dyer, 1989, p. 42-43).

Although rents fell or remained low until at least the middle of the 15th century, the lords of England continued to take a keen and active interest in the land and what it should yield them. After all, unlike in France, they had never given up their claim to own it all. However, when population and prices rapidly increased again and real wages fell, particularly from the middle of the 16th century, the lords 'failed', as Harvey puts it, to return to demesne farming. Instead, they continued with leasing and upward pressure on rents (Davis, 1968, p. 228), and, in the late 15th, mid-16th and early 17th centuries in particular, with acquiescence in, help with, or the promotion of, enclosures and engrossing to create larger-scale, capital-intensive farming employing free wage labour and producing commodities for the market (Coleman, 1977).

⁷Although Britnell also says that '... many lords aimed to achieve stable rents from reliable tenants, rather than to bargain for the highest sum to be obtained at any given moment' (1993, p. 189), this is not inconsistent with hard-bargaining for the highest sustainable rent.

In Marx's view, underlying this agricultural revolution was the emergence and ultimate generalisation of capitalist relations, the employment of free wage labour for '... the production of the product as a mere commodity and a mere means of appropriating surplus value' (1981, p. 935)—a new system of surplus extraction that only gradually becomes generalised. As he stresses several times, in his view, 'This entry of capital into agriculture as an independent and leading power does not take place everywhere all at once, but rather gradually and in particular branches of production' (1981, p. 937), with its generalised adoption only from the last third of the 17th century.

What evidence is there for Marx's views? In particular, and leaving aside questions of the causal process,⁸ the critical prior question is whether it is possible to even observe the appearance of 'agrarian capitalism' in Marx's terms. As Postan says, although he believed it impossible for concepts like feudalism (and, by implication, capitalism) to be precisely defined, 'The main use of a model, as of that of all generalised concepts, is to group individual phenomena for purposes of recognition... [which]... is inherent in the very process of explanation' (1983, pp. 75-76). In other words, before we can even start to explain the appearance of Marx's agrarian capitalism, we must be able to precisely and consistently define the concept, and be able to observe it.

In search of agrarian capitalism

For many historians and social scientists, 'Defining capitalism causes much difficulty...' (Dyer, 1991, p. 1), and for some, Marx's concept of agrarian capitalism in particular is highly problematic (e.g. Glennie, 1988, p. 34). However, some historians accept that Marx's analysis of the transition offers 'many valuable insights' (Coleman, 1977, p. 4), and for a few his definition of capitalism as a particular system of social relations 'has the great virtue of precision' (Dyer, 1991, p. 2). However, few historians have analysed precisely wherein this

⁸For example, Brenner's view that, given their relative weakness, the lords were unable to reimpose serfdom, and therefore had no choice but to continue with leasing and rely on competition between the growing number of prospective tenants to restore their incomes. In his view, the consequence was that by the late 16th and early 17th centuries, 'The resulting competition among tenants for the land and among landlords for tenants [had] stimulated cost-cutting... leading over time to the replacement of small, relatively inefficient peasant tenants by larger capitalist tenants, thus underpinning an agricultural transformation' (1985, p. 297). While this argument is consistent with the development of the lords' accounting system in phase three, and is highly plausible in its own right (see, for example, Coleman, 1977, pp. 122-124), the process whereby capitalist relations emerged is clearly a subject requiring detailed research (Glennie, 1988), and is beyond the scope of this paper.

precision lies, and none has seen the relevance of accounting for testing this aspect of Marx's theory.

For example, even though Brenner assigns a central role to 'surplus-extraction relationships' to explain the transition to capitalist relations, as evidence for their emergence he merely references the growth of large productive units employing wage labour, the input of capital and the acceleration of innovation from the mid-16th century. Although for him their appearance '... provides convincing evidence for the grip of capitalist production relations on English agriculture in this period...' (1985, p. 316), as Dyer points out, if the existence of capitalist farmers is judged by these criteria, '... capitalists and potential capitalists lived in 15th century England' (1991, p. 21). However, as Glennie says, arguably these developments were not new and their significance '... a matter for considerable debate' (1988, p. 28). For example, by these criteria, capitalism could be said to have existed in the 13th century.⁹

For Brenner, as for most Marxist historians, the essence of capitalism is wage labour, the fact that workers are compelled to work and provide a surplus to the capitalist because they do not own the means of production. He implies that unpaid labour time itself is the capitalist's profit: the working-class, he says, '... must alienate a surplus (profit) to the employers...' (Brenner, 1985, p. 228, footnote 22). However, as Marx pointed out, unpaid labour time is only the *basis* for the capitalist's profit, as from it must be deducted the costs of circulation and the cost of the use-values of fixed capital consumed in production (Bryer, 1995). Thus, the critical test of his view that capitalist relations only gradually emerged from the 16th century is not the existence of wage labour, markets, etc., which are merely their *pre-conditions*, but evidence, or the lack of it, in the farmers' accounts of the period of the calculation of capitalist profit—that is, with a preoccupation with the calculation of the total cost of the commodities produced and sold after deduction of the costs for fixed capital, and with the rate of return on capital. Although no farmers' accounts appear to have survived from either the 15th or 16th centuries (Du Boulay, 1965, p. 443), there is clear evidence of capitalist profit calculation by at least one yeoman farmer in the early 17th: Robert Loder's farm accounts from 1610 (Fussell, 1936).

Unlike the medieval lords, Robert Loder clearly wanted to maximise the return on his capital: he carefully distinguished his own consumption, care-

fully set out the amounts of commodities sold and the surplus, and '... charges interest on money invested in the growing crop, seed, labour, and so on' (Fussell, 1936, p. xxiv). He uses the maximum rate decreed by the law governing usury, and this is clearly his benchmark rate of return. His investment 'He calls... "my stock which lay as dead"' (p. xxvi), implying it could have otherwise earned this return by being at loan. Furthermore, and critically, in calculating the cost of his horses and their equipment, in addition to the recurrent expenses for maintenance, he appears to clearly recognise the necessity of charging depreciation. In calculating his cost of production he adds a charge for '... horses the worse by wearing out, and in wearing other things; as for horse halter; ring'd halters collar halters, skipe, chafe seve, shovell, cripers, fetters, basten ropes, my plow, harrowes, etc, comes to, I judge, ye sune of vl.xijs' (Fussell, 1936, p. 54).

While Fussell seems unsure whether this charge can legitimately be called depreciation in the 'modern' sense (he footnotes: 'Depreciation of the horse?' (1936, p. 54)), the fact that the charge immediately follows a note of the 'Summa that my horses spent [cost?] me...' suggests that Loder bases it on an allocation of this cost according to the cost of the use value he judged to have been consumed by 'wearing out'.¹⁰

Historians invariably treat Rober Loder as an exemplar. For example, for Fussell he was '... an early 17th century "improver", and the probability is that there were many such' (1936, pp. x-xi). By deducting a charge for the depreciation of oxen in his construction of hypothetical profit and loss accounts for a 'typical' arable farmer, Bowden in effect also takes Rober Loder's accounts as a model for the period. However, the fact that they are the only one of the three surviving published 'account-books' that provides evidence of capitalist profit calculation may mean, as Marx suggested, that capitalist relations really were 'sporadic' until the last third of the 17th century.¹¹ In other words, that the other farmers who Bowden implies were concerned with 'profits' were, in fact, behaving as feudal lords, and concerned with feudal rent. From this point of view, Bowden's implicit use of Robert Loder's accounts as typical may go too far.¹²

¹⁰Depreciation on buildings would not be required as leases typically specified their upkeep as the landlord's responsibility (Bowden, 1967).

¹¹Although the records of Henry Best of Yorkshire have been called an account book, it is more accurately described as a Memorandum Book as no attempt is made to calculate any form of surplus. No 'profit and loss account' survives (Woodward, 1984, p. xvii). While those of Nicholas Toke of Kent are at least a portion of his account-books, those that survive merely include a calculation of the closing net working capital at Michaelmas (Lodge, 1927, e.g., p. 23), even though Lodge calls this figure 'profit' (1927, p. xxix)!

⁹As we have seen, for many historians, if only sometimes implicitly, it did. Consider also Wallerstein's (1974) view that '... the emergence of agrarian capitalism is reducible to the pursuit of profit through economically rational means. Thus any agricultural producers for commercialised commodity markets related to extra-local trade are capitalist entrepreneurs' (Glennie, 1988, p. 14).

Indirect evidence supporting the view that Robert Loder did not invent depreciation accounting—that his accounts are not an isolated example, but must be understood as an expression of the emerging social relations of capitalism in English agriculture—is the brief and isolated appearances of cost-based revenue-expense accounting in the 13th century in Genoese ship-building, and in the 14th and 15th centuries in other manufacturing enterprises in northern Italian and Flemish cities (Garner, 1976, chapter 1). These brief appearances are consistent with Marx's view that in these locations capitalist relations of production appeared but did not become generalised (Marx, 1973, p. 511; Hilton, 1976b, pp. 151; 156–157). As Marx says, 'Glass factories, paper mills, iron works etc. cannot be operated on guild principles. They demand mass production; sales to a general market; monetary wealth on the part of their entrepreneur...' (1973, p. 511) and, it follows, appropriate cost-based revenue-expense accounting for their surpluses. However, in his view, 'Although we come across the first sporadic traces of capitalist production as early as the 14th or 15th centuries in certain towns of the Mediterranean, the capitalist era dates from the 16th century', in England (1976, p. 876).

Finally, the common practice of 17th century yeoman farmers of charging notional interest on capital invested as a cost of production (Bowden, 1967), the 'illusion', as Marx puts it '...that the land has a value of its own and thus goes into the production price of the product as capital, just like a machine or raw material' (1981, p. 946), is consistent with his analysis of the early emergence of the demand for all capital to earn the 'general rate of profit'. In his view, this is a key regulator of the social relations of capitalism in its developed form (Bryer, 1995), and its appearance is therefore evidence for their existence at this time.

While more research on the accounting practices of English yeoman farmers is obviously required before firm conclusions can be drawn, on the basis that Robert Loder's accounts were not an isolated example, it may be suggested that capitalist relations in Marx's sense existed in agriculture in England by at least the early 17th century.

Concluding remarks

The history of manorial accounting in England, and the appearance of capitalist profit calculation

in the early 17th century, supports those accounting scholars who have insisted that accounting can only be understood in its social context (e.g. Hopwood and Johnson, 1986). As we have seen, historians often attempt to interpret charge and discharge accounting from the perspective of modern capitalism, and from this perspective many aspects of it are puzzling. However, when understood in the context of a system based on the direct appropriation of surplus labour, the history of manorial accounting can be understood as the implementation and development of a system for helping to manage and intensify feudal exploitation.

The potential for understanding the history of manorial accounting in its social context may also be illustrated by the answer it suggests to the question why charge and discharge accounting persisted on English estates for several hundred years, and double-entry bookkeeping was not adopted. Noke, for example, suggests that double-entry was not adopted because it would have been no more effective than charge and discharge at securing control of the lord's officials (1981, p. 151). However, while it is true that double-entry bookkeeping provides no inherent managerial control, an alternative explanation of the persistence of charge and discharge accounting could be that it reflected the persisting social relations of feudalism, whereas the appearance of double-entry bookkeeping in northern Italy reflected and reinforced the quite different social relations of merchant capitalism which emerged and flourished there.

Arguably, double-entry bookkeeping first emerged and was widely practised in northern Italy because only there was capital pooled in large merchant partnerships creating the need to calculate the rate of return on capital to manage the new social relations that emerged (Bryer, 1993). However, for the feudal lords of England in the 13th century, and for many centuries, there was no concept of capital, and therefore nothing to socialise. Thus, from Marx's perspective, quite understandably on the manorial estates of England, there was no need to calculate the rate of return on capital, and therefore no need for double-entry bookkeeping.

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¹²As does his calculation of the charge. In his enthusiasm for what he calls the 'science of accountancy', Bowden applies a form of economic depreciation accounting to produce a charge that includes interest on the capital employed (1967, e.g., p. 655), a calculation for which there is no warrant in Robert Loder's accounts.

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Properties of Market Expectations of Accounting Earnings by Financial Analysts: UK versus US

Jang YOUN CHO*

Abstract—This paper compares patterns and properties of financial analysts' forecasts (FAFs) of earnings between the UK and the US. Using 299 UK and 400 US firms from the same data source—Institutional Brokers Estimate System tapes—the accuracy of forecasts is examined and the sources of errors analysed. The results reveal that FAFs errors in the UK are much smaller than those in the US, and that this disparity persists even after controlling for firm size and industry effects. Further, FAFs of US firms demonstrate consistent overestimation of earnings over the sample period 1988–1990, while UK firms show overestimation in only one of three years. A model developed to test the determinants of forecast error reveals that forecasters of UK firms are influenced in a somewhat different fashion from those of US firms. While dispersion, predisclosure information (market capitalisation or number of analysts), and industry are common determinants of forecast error for both countries, the percentage of forecasts revised is a major determinant only for UK firms.

Introduction

Over the last two decades, a growing number of researchers and practitioners have employed financial analysts' forecasts (FAFs) in empirical research or in portfolio selection. FAFs have a number of important properties that make them a useful tool in studies of expectations in financial markets.¹ An important empirical aspect of FAFs is that by comparing them to actual earnings, an *ex post* forecast error measure can be derived. FAF error represents the extent to which analysts can accurately predict a firm's earnings. Although empirical evidence in the US has documented that forecast errors have a systematic upward bias (Fried and Givoly, 1982), FAFs appear to represent the earnings expectations of market participants more adequately than time-series based models (Brown, Richardson and Schwager, 1987).

Less attention has been given to FAFs in the UK.² The purpose of this paper is to examine the

ability of analysts to forecast earnings accurately and without bias in the UK and US markets. The same source of data, the Institutional Brokers Estimate System (IBES) tapes, is used for both UK and US firms. In addition, forecast errors are analysed by partitioning them into three components: bias, inefficiency and random error. The forecast error determinants within each country are then compared.

The results reveal that the UK's forecast errors are much smaller than those for US firms. The pattern of forecast error also differs between the UK and US. Regression models of determinants of forecast error reveal that while dispersion, predisclosure information (market capitalisation or number of analysts) and industry are common determinants of forecast error for both countries, the percentage of forecasts revised is a major determinant only for UK firms. Institutional variables such as earnings announcement delays and different accounting systems are proposed to explain the difference between the two countries.

The remainder of this paper is organised as follows. Section two presents the research design, including the sample selection procedures and the data sources used. Results of the empirical tests are presented in section three. The final section contains the conclusions and implications for future research.

Research design

Data

The data used in this study were generated from the 1991 domestic and international IBES

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¹The relevance of FAFs has been illustrated by Givoly and Lakonishok (1984) and Brown, Foster and Noreen (1985), who reviewed the evidence on financial analysts' forecasts of earnings in the US.

²Notable exceptions include Bhaskar and Morris (1984) and Patz (1989); however, these studies relate to the periods 1970–75 and 1980–81, respectively. Both studies employ only a limited sample of UK firms and neither compares FAFs properties from the same data source nor aligns the sample periods between the two countries.

Table 1
Descriptive Statistics for Market Value and Number of Analysts

Panel A: Market value

	<i>US</i> \$m	(£m)	<i>UK</i> \$m	(£m)	<i>Wilcoxon Z</i> <i>statistic</i>
1988 Mean	1,211.87	(676.80)	1,124.18	(627.82)	-0.002
Median	219.61	(122.65)	191.55	(106.97)	
Std. deviation	3,248.81		2,886.75		
1989 Mean	1,222.10	(751.14)	976.38	(609.86)	-0.214
Median	193.88	(119.16)	146.75	(91.66)	
Std. deviation	3,652.11		2,711.82		
1990 Mean	1,492.77	(833.67)	1,388.13	(720.92)	-0.031
Median	247.00	(151.81)	228.60	(118.72)	
Std. deviation	3,974.59		4,197.05		
Number of firms	400		299		

Panel B: Market value by industry for 1988-90

	<i>US</i> \$m	<i>UK</i> \$m	<i>Wilcoxon Z</i> <i>statistic</i>
Financial services			
Mean	958.45	651.79	1.958*
Median	151.44	216.58	
N	306	108	
Health care			
Mean	1,787.06	4,213.55	2.406**
Median	169.78	410.62	
N	87	27	
Consumer goods			
Mean	1,433.14	1,226.40	0.268
Median	278.47	220.14	
N	225	357	
Energy			
Mean	2,275.29	369.90	0.199
Median	290.31	311.88	
N	57	6	
Transportation			
Mean	1,016.26	1,111.87	0.717
Median	420.23	939.69	
N	30	9	
Technology			
Mean	558.85	451.14	2.646***
Median	76.14	129.28	
N	183	63	
Basic industries			
Mean	1,557.23	520.71	5.297***
Median	802.07	144.78	
N	90	108	
Capital goods			
Mean	602.06	679.88	1.318
Median	209.05	148.50	
N	129	207	
Public utilities			
Mean	3,400.93	15,292.75	3.530***
Median	1,332.51	11,906.83	
N	93	12	

Panel C: Number of analysts

		US	UK	Student's t-statistic
1988	Mean	8.27	7.83	-0.768
	Median	5.00	6.00	
	Std. deviation	8.27	6.16	
1989	Mean	8.72	8.20	-0.908
	Median	6.00	6.00	
	Std. deviation	8.08	6.28	
1990	Mean	8.23	6.84	-2.563**
	Median	5.00	5.00	
	Std. deviation	8.02	5.51	
	Number of firms	400	299	

***Significant at 0.01 level, two-tailed test.

**Significant at 0.05 level, two-tailed test.

*Significant at 0.10 level, two-tailed test.

tapes.³ Since the tapes provide data beginning with fiscal year 1987, all companies without missing data for the three year period 1988–90 were included in the analysis. For the UK sample, there are 1,104, 1,060 and 958 firms that have data in 1988, 1989 and 1990, respectively. Among these firms, 774 firms have data for all three years. Three hundred of these are randomly selected.⁴ For the US sample, there are 3,963, 4,025 and 4,134 firms that have data for the same dates. Four hundred firms are randomly selected from the 2,648 firms that have data for all three years.

Table 1 provides the descriptive statistics for firm market value, average market value by industry and average number of analysts. The market values of the sample of US companies are slightly larger, on average, than those of the UK's. Average market value in the UK sample is \$1,124 m (£627.82 m) in 1988, \$976 m (£609.86 m) in 1989, and \$1,388 m (£720.92 m) in 1990.⁵ Average firm market values in the US sample are about \$1,211 m to \$1,493 m for 1988–90, which show no significant difference in market value compared to those of

UK firms as indicated by the Wilcoxon Signed Ranks Z-statistic.

Panel B of Table 1 shows the sample firms classified into the nine IBES sector codes. Compared with US firms, UK firms in public utility industries are significantly larger. On the other hand, the basic industry firms in the US are significantly larger than the UK's. Panel B also indicates significant differences in industry representation between the two countries (chi square 311.51, $p = 0.001$). The impact of these differences is discussed later (Table 3). Panel C shows that the average number of analysts following each firm is generally comparable between the two countries, except for the year 1990.

Error Measures

Several measures of forecast errors are employed. Mean forecast error (MFE) is used to determine whether analysts in each country have any systematic bias for under- or over-prediction of earnings per share (EPS). Mean forecast error is calculated as the difference between analysts' mean forecast and actual EPS divided by absolute actual EPS, yielding a forecast error measure in terms of a percentage of actual EPS. If F_j is the analysts' mean forecast made in the month before the actual earnings are announced for firm j , and A_j is the actual EPS, then the mean forecast error for firm j (MFE_j) is

$$MFE_j = [A_j - F_j] / |A_j| \quad (1)$$

The second group of forecast error measures is absolute value of forecast error for firm j (FE_j) and is measured as follows:

$$FE_j = |A_j - F_j| / |A_j| \quad (2)$$

³The estimates are made by polling and compiling the earning forecasts made by professional securities analysts at brokerage and research firms. IBES takes the individual earnings estimates and groups them by company and by fiscal period, then produces earnings statistics estimates for the current and next fiscal years, along with a five-year projected average annual growth rate. In the IBES monthly issues, the service includes average forecasts (typically based on 10 to 20 different analysts), the lowest and the highest as well as the standard deviation of the estimate across forecasters, and other statistics. The international data is comparable to US data and is compiled for 29 countries.

⁴One firm is later dropped because of missing market value.

⁵The exchange rates are taken from the *Wall Street Journal* as of 31 December each year. 1988: £1 = \$1.7906; 1989: £1 = \$1.6010; 1990: £1 = 1.9255.

Since both MFE and FE take on extreme values as actual EPS approaches zero, the following measure is also employed:

$$FE_j = |A_j - F_j|/P_j \quad (3)$$

where P_j denotes the price per share at fiscal year end.

To analyse further the errors made by analysts, the source of analysts' errors is diagnosed by partitioning error into bias, inefficiency and a random component. The decomposition gives some insight into forecast characteristics by identifying whether there are recognisable patterns in errors. This measure is obtained from the average mean squared forecast error in year ahead growth, defined below.

$$MSFE = 1/N \sum_{j=1}^N (FG_j - AG_j)^2 \quad (4)$$

where

$FG_{jt} = F_{jt} - A_{jt-1}$ = forecast growth for firm j
 $AG_{jt} = A_{jt} - A_{jt-1}$ = actual growth for firm j
 F_{jt} = current period's EPS forecast for firm j
 A_{jt} = current period's EPS for firm j
 A_{jt-1} = prior period's EPS for firm j
 N = number of observations.

The MSFE is then partitioned as follows:

$$MSFE = (\bar{FG} - \bar{AG})^2 + (1 - \beta)^2 S_F^2 + (1 - \rho^2) S_A^2 \quad (5)$$

where

\bar{FG} = mean value for FG across all companies for a country.
 \bar{AG} = mean value for AG across all companies for a country.
 β = the slope coefficient of the regression of AG on FG.
 S_F = the standard deviation of FG.
 S_A = the standard deviation of AG.
 ρ = the correlation between FG and AG.

The first term represents bias, the tendency for forecasters to consistently overestimate or underestimate the true average. The second term represents inefficiency, the tendency for forecasts to be consistently underestimated at high values of forecast growth (FG) and overestimated at low values of FG, or vice versa. If the beta of actual growth (AG) regressed on FG is greater than one, forecasts are underestimates at high values of FG and overestimates at low values. If the beta of AG regressed on FG is less than one, the forecasts are overestimates at high values of FG and underestimates at low values of FG. The final component is a random disturbance term, a measure of error not related to forecasted or actual growth.

Determinants of Forecast Error

In addition to comparing the magnitude of forecast errors and source of errors, the determinants of analysts' ability to forecast earnings accurately in the UK and the US is examined. Because uncertainty (i.e., the lack of information) decreases analysts' ability to accurately forecast earnings, we incorporate measures of uncertainty in a cross-sectional model predicting FAF error across firms and countries.

The dependent variable, absolute value of forecast error (FE), measures the accuracy of financial analysts' forecasts. It is hypothesised that there is a positive correlation between dispersion (DISP), which measures the ex ante uncertainty surrounding analysts' forecasts, and the dependent variable, FE. The intuition for using dispersion among analysts' forecasts relies on the statistical notion that as the amount of information concerning an unknown quantity increases, opinions tend to merge. Blackwell and Dubins (1962) demonstrate that as individuals obtain large finite information items, each individual has a basis for sharper probability beliefs and the variation of their opinions decreases. In financial economics, Barry and Brown (1985) provide theoretical support for the notion that beliefs among analysts tend to converge as the amount of public information increases.

The second explanatory variable proxies for the level of predisclosure information. Two variables are employed as proxies for the level of predisclosure: number of analysts (NOA) and market capitalisation (MCAP). A negative association is hypothesised between NOA and FE, since the number of analysts following a company indicates that more information is available about that company's earnings prospects (Atiase, 1985). Brown, Richardson and Schwager (1987) provide evidence that there is a negative correlation between MCAP and analysts' forecast errors. If, as Dempsey (1989) asserts, the number of analysts following a firm is a superior proxy to MCAP (firm size) for measuring predisclosure information, the correlation between NOA and FE will be negative, even after controlling for MCAP.

The third explanatory variable is the percentage of forecasts revised (REVIS), which is equal to the number of upward and downward revisions divided by the number of estimates. A positive FAF revisions variable would indicate more available information and more frequent forecasts, which are expected to have negative correlation with the magnitude of forecast errors.

There may be important industry differences that affect analysts' ability to forecast earnings accurately. For example, the earnings of regulated industries may be easier to predict than those of unregulated ones. Other factors, such as level of competition within the industry and the maturity

of the industry, may affect analysts' ability to forecast earnings accurately. To examine the industry effect, dummy variables are added to the model. We estimate the following pooled time-series, cross-sectional model:

$$FE_j = \beta_0 + \beta_1 DISP_j + \beta_2 PREDIS_j + \beta_3 REVIS_j + \sum \delta_i I_{ij} + \epsilon_j, \quad (6)$$

where

FE_j = absolute value of forecast error for firm $j = |(A_j - F_j)|/|A_j|$

$DISP_j$ = standard deviation of analysts' forecasts ($DISP_j$ is standardised by absolute actual earnings in the final regression model)

$PREDIS_j$ = predisclosure information (NOA or MCAP)

NOA_j = number of analysts following firm j

$MCAP_j$ = Ln (market value of firm j)

$REVIS_j$ = proportion of revisions = (revisions up + revisions down)/NOA

I_0 = Financial services

I_1 = Health care

I_2 = Consumer goods

I_3 = Energy

I_4 = Transportation

I_5 = Technology

I_6 = Basic industries

I_7 = Capital goods

I_8 = Public utilities.

Results

FAF Over/underestimation

To determine whether UK and US analysts produce any systematic over/under prediction of EPS, the mean forecast error is examined. If the forecasts exhibit systematic over/underestimation, the expected mean forecast error is significantly different from zero. Over/underestimation is calculated as the difference between the analysts' mean forecast and actual EPS, divided by either absolute actual EPS or share price at fiscal year end.

Because the use of absolute actual EPS as a deflator resulted in numerous outliers, hereafter we report results based on observations truncated at a level of $\pm 100\%$.⁶

Table 2 shows the results for FAF over/underestimation for each of the three years 1988–1990, with absolute actual EPS (truncated) as the deflator in Panel A and price as the deflator in Panel B. Average mean forecast error in the US ranges from 3.5% to 7.7%, while in the UK, the

range is from 0.1% to 2.4%. Table 2 also shows large forecast errors and high standard deviation of forecast errors in each year for US firms. Although UK firms' average forecast error is much smaller, two out of three sample years demonstrate significant overestimation. The results of Panel B in Table 2 are similar to those of Panel A.

These results for US firms support the findings of Fried and Givoly (1982), who document a significant upward bias over the years 1969–1979 on data collected from the Earnings Forecaster. In the UK case, no evidence of the consistent underestimation observed by Bhaskar and Morris (1984) is found.

FAF Error

Table 3 summarises the absolute FAF error (truncated) for each country for the years 1988 through 1990. FAF error is calculated in the same manner as FAF over/underestimation, except that the absolute value of the difference between the forecast and actual EPS is used to provide an indication of FAF accuracy.

The most striking result in Table 3 is the average absolute FAF error for the US. In each of the three years examined, Panel A of Table 3 shows that US absolute FAF error averaged over 30%.⁷ The UK's error is little more than 4% to 8% in the period 1988–1990, although it is increasing over the three year period. The results of scaling the forecast error by year-end price appear in Panel B in Table 3. Though much smaller in magnitude, the errors reveal a similar pattern to the results reported in Panel A.

Because firm selection by IBES may be different from country to country, large forecast errors in the US may be caused by selection bias. Since there is a significant difference in industry composition of sample firms as discussed in Table 1, absolute forecast error by industry was examined. The results are presented in Panels C and D of Table 3. Absolute forecast error of US firms is uniformly larger for all industries, which provides additional support that US forecast errors are uniformly larger than the UK's.

FAF error by the number of analysts is examined since the intensity of analyst following may vary from country to country. The results, presented in Table 4, confirm that FAF error generally declines as analyst following increases. However, overall, the difference between forecast accuracy for the two countries still persists after controlling for the number of analysts.

When absolute forecast error is used as a deflator, the average forecast error of US firms decreases by 33% (from 37.68% to 25.01% as the

⁶11% of the US observations show forecast errors exceeding 100%, while only 1% of the UK observations have forecast errors exceeding 100%.

⁷A recent study by Philbrick and Ricks (1991) reports a 58% FAF error for US firms when the absolute value of EPS is used as a deflator.

Table 2
Mean Forecast Error for 1988–1990

Panel A: Mean forecast error: $MFE = (A - F)/|A|$

	US	UK	Student's <i>t</i> -statistic
1988 Mean	−0.0348	−0.0012	1.2630
Std. deviation	0.4531	0.0940	
t-statistic	−1.5319	−0.2215	
1989 Mean	−0.0306	−0.0170	0.4959
Std. deviation	0.4554	0.1516	
t-statistic	−1.3368	−1.9336*	
1990 Mean	−0.0772	−0.0239	1.938*
Std. deviation	0.4523	0.1670	
t-statistic	−3.3988***	−2.4756**	
N	400	299	

Panel B: Mean forecast error: $MFE = (A - F)/P$

	US	UK	Student's <i>t</i> -statistic
1988 Mean	−0.0069	−0.0004	1.0329
Std. deviation	0.1091	0.0068	
t-statistic	−1.2654	−1.0216	
1989 Mean	−0.0242	−0.0015	2.1706**
Std. deviation	0.1803	0.0159	
t-statistic	−2.6752***	−1.6380	
1990 Mean	−0.0356	−0.0022	2.9437***
Std. deviation	0.1956	0.0189	
t-statistic	−3.6260***	−1.9848**	
N	400	299	

***Significant at 0.01 level, two-tailed test.

**Significant at 0.05 level, two-tailed test.

*Significant at 0.10 level, two-tailed test.

A = actual earnings per share.

F = earnings forecast made in the month before the actual earnings are announced.

P = price per share at fiscal year end.

number of analysts increases from 1–2 to 13 and over). In comparison, the reduction in the UK is more evident in that average forecast error decreases by 62.3% (9.74% to 3.64%). A similar finding is observed for standard deviation. It decreases by 64.5% (from 0.174 to 0.062) as the number of analysts increases in the UK, while it decreases by 22.2% (from 0.370 to 0.286) in the US.

Table 5 presents the results of partitioning MSFE into bias, inefficiency and random error. Forecast error for the average level of growth (i.e., bias) for each country tends to be small; however, in the US, 2.4% of forecast error is caused by bias, which is much higher than in the UK. Perhaps of greater interest though is the finding that inefficiency for the US is very high (9.54%). This high inefficiency is caused by a β (from equation 5) that is significantly less than one. This low β implies

that in the US, analysts systematically overestimate the growth of high growth firms and underestimate the growth of low growth firms. This result is consistent with prior research using US analysts (e.g., Elton et al., 1984).

Regression Analysis

Table 6 summarises the results from the OLS regression which examines the relation between forecast error and dispersion, number of analysts (or market capitalisation), proportion of revisions, industry and year.

The most important explanatory variable in all models is the dispersion of forecasts (SDISP), which has a positive sign as hypothesised. The percentage of forecasts revised (REVIS) is correctly signed (negative) and is statistically significant for the UK, but not for the US. The NOA variable is significant at 0.01 level in the UK and

Table 3
Mean Absolute Forecast Error by Year and Industry

Panel A: Mean absolute forecast: $FE = |A - F|/|A|$

	US	UK	Student's t-statistic
1988 Mean	0.3142	0.0455	-13.8405***
Std. deviation	0.3280	0.0822	
t-statistic	19.0871***	9.5666***	
1989 Mean	0.3106	0.0648	-11.9751***
Std. deviation	0.3341	0.1381	
t-statistic	18.5256***	8.1111***	
1990 Mean	0.3023	0.0838	-10.2831***
Std. deviation	0.3448	0.1464	
t-statistic	17.4704***	9.8960***	
N	400	299	

Panel B: Mean absolute forecast error: $FE = |A - F|/P$

	US	UK	Student's t-statistic
1988 Mean	0.0431	0.0025	-6.9828***
Std. deviation	0.1004	0.0063	
t-statistic	8.5641***	6.9646***	
1989 Mean	0.0700	0.0055	-6.6211***
Std. deviation	0.1679	0.0150	
t-statistic	8.3085***	6.3736***	
1990 Mean	0.0695	0.0075	-5.7395***
Std. deviation	0.1862	0.0175	
t-statistic	7.4420***	7.4312***	
N	400	299	

Panel C: Mean absolute forecast error by industry: $FE = |A - F|/|A|$

Industry	US		UK		Student's t-statistic
	N	FE	N	FE	
Financial services	306	0.308	108	0.084	-6.823***
Health care	87	0.416	27	0.045	-5.465***
Consumer goods	225	0.326	357	0.057	-13.573***
Energy	57	0.437	6	0.328	-0.676
Transportation	30	0.249	9	0.036	-2.202**
Technology	183	0.339	63	0.054	-5.886***
Basic industries	90	0.191	108	0.068	-4.702***
Capital goods	129	0.277	207	0.066	-8.772***
Public utilities	93	0.216	12	0.058	-1.900*

Panel D: Mean absolute forecast error by industry: $FE = |A - F|/P$

Industry	US		UK		Student's t-statistic
	N	FE	N	FE	
Financial services	306	0.090	108	0.005	-4.228***
Health care	87	0.064	27	0.003	-1.924*
Consumer goods	225	0.058	357	0.004	-7.022***
Energy	57	0.069	6	0.010	-0.897
Transportation	30	0.115	9	0.006	-1.129
Technology	183	0.055	63	0.007	-2.805***
Basic industries	90	0.034	108	0.006	-4.363***
Capital goods	129	0.034	207	0.007	-5.269***
Public utilities	93	0.022	12	0.003	-1.820*

***Significant at 0.01 level, two-tailed test.

**Significant at 0.05 level, two-tailed test.

*Significant at 0.10 level, two-tailed test.

A = actual earnings per share.

F = earnings forecast made in the month before the actual earnings are announced.

P = price per share at fiscal year end.

Table 4
Pooled Analysis of Forecast Errors by Number of Analysts
(NOA) for 1988–90

Panel A: Mean absolute forecast error: $FE = |A - F|/|A|$

<i>NOA</i>		<i>US</i>	<i>UK</i>	<i>Student's t-statistic</i>
1–2	Mean	0.3768	0.0974	–10.393***
	Std. deviation	0.3695	0.1743	
	N	329	217	
3–5	Mean	0.3220	0.0661	–10.870***
	Std. deviation	0.3405	0.1200	
	N	277	231	
6–12	Mean	0.2791	0.0590	–9.940***
	Std. deviation	0.3223	0.1174	
	N	313	233	
≥ 13	Mean	0.2501	0.0364	–10.788***
	Std. deviation	0.2859	0.0618	
	N	281	216	

Panel B: Mean absolute forecast error: $FE = |A - F|/P$

<i>NOA</i>		<i>US</i>	<i>UK</i>	<i>Student's t-statistic</i>
1–2	Mean	0.0937	0.0101	–5.538***
	Std. deviation	0.2215	0.0233	
	N	329	217	
3–5	Mean	0.0726	0.0042	–6.180***
	Std. deviation	0.1680	0.0080	
	N	277	231	
6–12	Mean	0.0392	0.0042	–6.102***
	Std. deviation	0.0868	0.0108	
	N	313	233	
≥ 13	Mean	0.0350	0.0023	–5.290***
	Std. deviation	0.0907	0.0060	
	N	281	216	

***Significant at 0.01 level, two-tailed test.

A = actual earnings per share.

F = earnings forecast made in the month before the actual earnings are announced.

P = price per share at fiscal year end.

Table 5
Components of Mean Squared Forecast Error (MSFE)

	<i>Bias (%)</i>	<i>Inefficiency (%)</i>	<i>Random error (%)</i>
US All	2.371	9.545	88.060
	1988	4.898	86.674
	1989	2.377	87.240
	1990	0.710	88.221
UK All	0.236	2.651	97.113
	1988	0.362	98.748
	1989	0.252	98.205
	1990	0.095	94.385

Table 6
Regression Results

Dependent variable: $|A - F|/|A|$ () denotes t-statistic

Independent variables	US		UK	
	(N = 864)		(N = 680)	
	Coefficient	Coefficient	Coefficient	Coefficient
Constant	0.412 (8.72)***	0.291 (9.11)***	0.102 (4.71)***	0.064 (5.64)***
SDISP	0.107 (9.86)***	0.109 (10.00)***	0.254 (22.40)***	0.254 (22.43)***
NOA		-0.002 (-1.72)*		-0.001 (-2.57)**
MCAP	-0.025 (-3.86)***		-0.005 (-2.63)***	
REVIS	0.087 (1.50)	0.084 (1.44)	-0.033 (-2.51)**	-0.034 (-2.58)***
I1	0.113 (2.56)**	0.112 (2.52)**	-0.010 (-0.58)	-0.008 (-0.42)
I2	0.014 (0.45)	0.004 (0.12)	-0.015 (-1.55)	-0.011 (-1.15)
I3	0.061 (1.24)	0.053 (1.07)	0.060 (1.68)*	0.065 (1.80)*
I4	-0.032 (-0.52)	-0.029 (-0.47)	-0.021 (-0.75)	-0.020 (-0.72)
I5	-0.027 (-0.76)	-0.010 (-0.28)	-0.019 (-1.37)	-0.014 (-1.03)
I6	-0.094 (-2.32)**	-0.106 (-2.61)***	-0.018 (-1.45)	-0.018 (-1.42)
I7	-0.045 (-1.24)	-0.045 (-1.24)	-0.025 (-2.38)**	-0.023 (-2.15)**
I8	-0.046 (-1.14)	-0.071 (-1.77)*	0.010 (0.41)	0.007 (0.27)
Y1	0.001 (0.04)	0.009 (0.35)	0.011 (1.53)	0.012 (1.63)
Y2	-0.031 (-1.23)	-0.034 (-1.36)	0.012 (1.57)	0.009 (1.25)
Adj. R ²	0.144	0.132	0.448	0.448
F-statistic	12.184***	11.117***	43.368***	43.323***

***Significant at 0.01 level, two-tailed test.

**Significant at 0.05 level, two-tailed test.

*Significant at 0.10 level, two-tailed test.

SDISP: dispersion standardised by absolute actual earnings; NOA: number of analysts; MCAP: Ln (market value); REVIS: proportion of revisions.

I1: Health care; I2: Consumer goods; I3: Energy; I4: Transportation; I5: Technology; I6: Basic industry; I7: Capital goods; I8: Public utilities. Y1: 1989; Y2: 1990.

A = actual earnings per share.

F = earnings forecast made in the month before the actual earnings are announced.

P = price per share at fiscal year end.

The effects of the I0 (financial services) and Y0 (1988) are captured in the constant.

comparable to the significance level of the market capitalisation variable (MCAP). At the 0.01 level, NOA does not appear to be a key determinant of FE for the US case. Similarly, only two of the eight

industry variables (health care and basic industry for the US; energy and capital goods for the UK) are significant for both regressions and there appears to be little consistency in the significance of

industry variables between the two countries. The year dummy variables are not significant at conventional levels for either model. The regression results in Table 6 are comparable to models that omit the year dummy variables (not reported).⁸

The results discussed above show that US forecast errors are larger than the UK's, even after controlling for predisclosure information and industry. Two possibilities are proposed to explain this phenomenon. First, as noted by Nobes (1983), each country's accounting system is unique.⁹ Financial reporting in the US is characterised by stricter disclosure rules which might restrict managers from smoothing earnings (Choi and Mueller, 1992, p. 307; Frost and Pownall, 1992; and Peller and Schwitter, 1991). If managers generally wish to adjust earnings toward the market expectations made by analysts, forecast errors will be higher when managers are allowed less discretion in adjusting earnings to market expectations.¹⁰

The second possible factor is differential reporting lags. The average reporting lag of annual reports in the UK is much longer than in the US (Choi and Mueller, 1992; Frost and Pownall, 1992). The average reporting lag is about 74 days for US firms and 102 days for UK firms. The longer the delay, the higher the probability that earnings information will be available to analysts prior to earnings announcements. The smaller unexpected earnings in the UK can be partially explained by the observed difference in reporting delay.

Summary and conclusions

This study analyses the characteristics and determinants of financial analysts' forecast errors. Data from 299 UK and 400 US firms were examined. The results show considerable variation in forecast errors between the two countries, with higher forecast errors observed for US firms.

The results for the tests for bias of FAF errors show that upward bias is apparent for US firms. However, the results fail to support a previous

study that found significant downward bias for UK firms. Unlike UK forecasts, US forecasts exhibited significant inefficiency with US forecasters tending to overestimate growth of high growth firms and underestimate it for low growth firms. The determinants of FAF accuracy were found to be somewhat similar between the UK and the US, with the exception of percentage of forecasts revised. Two explanations were proposed (though not investigated) for the differences in forecast errors between the two countries. The first relates to differences in the accounting environments between the US and the UK (Nobes, 1983). The second relates to the timeliness of corporate disclosure. Future research employing these institutional variables is warranted to explain these observed discrepancies.

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⁸To further confirm these findings, multicollinearity among the explanatory variables is examined. Variance inflation factors (VIF) for the explanatory variables of pooled regressions reported in Table 6 are obtained. All the VIF for the explanatory variables are below 3, ranging from 1.02 to 2.64. Thus, collinearity does not seem to affect the results reported.

⁹Nobes (1983) classifies countries into micro- and macro-based financial reporting groups. Micro-based financial systems are influenced heavily by business practice, while macro-based reporting systems are based on tax and other laws. Within the micro-based group, Nobes classifies countries according to UK or US influence.

¹⁰A related issue is management's perception of the biasedness of forecasted earnings. It is an open issue as to whether management's perception of analyst biasedness affects their earnings management behaviour.

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Brand Valuation: A Model and Empirical Study of Organisational Implications

Chris Guilding and Richard Pike*

Abstract—This paper presents a model concerned with the organisational and behavioural implications associated with accounting for brand values. A series of propositional statements concerning the internal implications of brand value accounting are formulated and the relative strength of each proposition is analysed using data collected via a mailed survey. In interviews conducted with senior management in strongly-branded companies it was found that beneficial managerial implications are expected to result from a brand valuation. Interviewees saw these implications as primarily strategically, rather than operationally, orientated. This view was provided with some support by the survey data. Evidence is also provided that marketing directors perceive greater benefits arising from brand valuation than do finance directors.

Introduction

The growing literature on brand value capitalisation has tended to focus on the appropriateness and potential for including brand value in companies' published financial statements (e.g. Tweedie, 1988; Barwise et al., 1989; Srikanthan et al., 1989; Willott, 1989; Damant 1990; Arthur Andersen and Co., 1992; Napier and Power, 1992; Power, 1992). A financial management focus is provided by Mather and Peasnell (1991) who investigated the capital market effects of decisions to capitalise brands. To date, however, only limited interest has been shown in the managerial accounting implications of brand valuation and in particular its organisational and behavioural effects (Guilding, 1992; Guilding and Moorhouse, 1992).

This study draws on the roles of the budget to develop a series of propositions concerned with the behavioural and organisational implications of brand valuation. The nature of these propositions precludes them from being viewed as hypotheses that can be rigorously tested. Rather, an empirical investigation designed to explore the nature of managers' attitudes to the propositions has been conducted.

The empirical study involved three phases. At the outset, a series of exploratory interviews were held designed to further our appreciation of the nature of brand management and the potential organisational and behavioural implications arising from brand valuation. The second empirical phase involved collecting data via a mailed opinion survey of senior management in strongly-branded

companies. The final phase involved a case study in a leading fast-moving consumer goods company.

The remainder of the paper is organised in the following manner. The next section provides a background to the recent brand accounting controversy in Britain. This is followed by the development of propositional statements which collectively offer a model of the organisational and behavioural outcomes associated with brand value accounting. The research method and the results of the empirical phase of the study are then described. Finally, the conclusions are presented together with a discussion of the model's attributes and limitations and the paper's research contributions.

Background

The issue of brand value capitalisation arose in Britain in the late 1980s when several companies, notably Guinness, Reckitt and Colman, Grand Metropolitan and United Biscuits, included a valuation of brands acquired in takeover activity in their published balance sheets. In 1988, Ranks Hovis McDougall took this innovative financial accounting practice one step further by capitalising internally-developed as well as externally-acquired brands.

In 1990, the Accounting Standards Committee published Exposure Draft 52, *Accounting for Intangible Fixed Assets*, allowing inclusion of intangible fixed assets on the balance sheet only if the historical cost is ascertainable, assets are distinguishable from goodwill, and the cost is measurable independently of goodwill, other assets and earnings of the relevant business. The Exposure Draft expressed the view that it was probable that brands would fail to meet these criteria.

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The Arthur Andersen (1992) report took a rather different position:

'Our research confirms that there are indeed methodologies for valuing intangible assets that are well understood and applied by many different types of practitioner, both in the UK and overseas. Further, we believe that these methods, and the process by which they are applied, should be codified, endorsed and promulgated as professional practice standards. This will increase the acceptance of intangible asset valuations within the business community.' (p. iii)

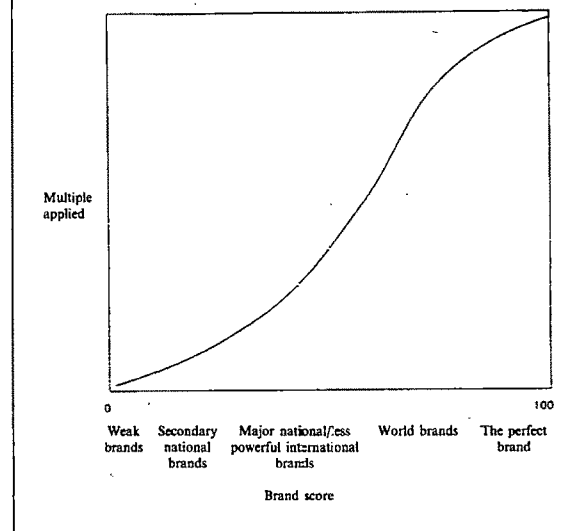
Much of the brand valuation debate centres on whether brands should be capitalised for external financial reporting purposes. However, this is just one of many purposes for seeking a valuation; others include raising finance, acquisition planning, taxation, licensing arrangements and brand management. Surprisingly little attention has been paid to this last purpose; indeed, the internal organisational issues surrounding brand valuation have largely been ignored (Barwise, 1993).

The method of brand valuation should be related to its primary purpose. For brand management purposes, the method will depend on the brand manager's objectives and performance targets. Typically, the basis of valuation will be *existing use value*, which assumes current marketing, operational and financial strategies, although *market value* will also be of interest.

While several brand valuation methods may be used (Penrose and Moorhouse, 1989; Guilding and Pike 1990), the most widely applied method has been developed by Interbrand, the brand consulting agency. This brand valuation method involves determining, through consultation with marketing management, the brand's strength on factors such as: leadership, stability, market, internationality, trend, support and protection. The ratings achieved with respect to these factors are used to determine a multiplier, which, when applied to the brand's profit level, yields a monetarily-denominated brand valuation (Guilding and Moorhouse, 1992). The relationship between brand strength score and the earnings multiple is represented graphically by an 'S' curve derived from empirical marketing research and experience. This is illustrated in Figure 1. As brand strength increases from 'weak' to 'secondary' brand strength, value increases gradually. With increasing brand strength to national and world brand strength, the multiplier experiences rapid growth. Finally, once a world class brand is attained, continued growth again becomes gradual.

For the remainder of this paper, this type of valuation method, focusing on the brand's underlying strength rather than the historical cost of building or purchasing the brand, will be assumed.

Figure 1
The Brand Valuation Multiplier (S Curve)



Capitalising the cost of brands acquired is a passive approach compared with a periodically updated brand valuation that follows an appraisal of the brand's commercial strength. This distinction is significant as, during interviews conducted, it was found that many see internal implications arising because of the valuation process rather than from the figure derived. It should be noted, however, that this type of valuation involves a higher degree of subjectivity.

A model of organisational implications

Central to management accounting in almost every business is the budgetary control process. Buckley and McKenna (1972) view the sinews of this process as 'the influencing of management behaviour by setting agreed performance standards, the evaluation of results and feedback to management in anticipation of corrective action where necessary' (p. 137). As such, budgeting is both a technical and a managerial process. Over the past 40 years, accounting research has examined the organisational and behavioural effects of budgetary control systems (e.g. Argyris, 1952; Hopwood, 1973; Otley, 1978; Briers and Hirst, 1990). One clear observation from such research is that the budget performs many roles and serves a wide variety of purposes.

These widely acknowledged budgetary roles provide a checklist and underlying structure for the development of the model of organisational and behavioural implications associated with brand valuation. We draw on the normative budgetary roles described by Lyne (1988), Emmanuel et al. (1990, p. 162), Horngren and Foster (1991, p. 173) and Drury (1992, p. 441). In addition, the literature

concerned with more ethereal, less technically-orientated, budgetary implications (e.g. Prakash and Rappaport, 1977; Burchell et al., 1980; Dirsmith and Lewis, 1982; Samuelson, 1986) has further informed the model's development. Synthesising this literature has resulted in the distillation of eight budgetary roles and implications: performance evaluation, communication, co-ordination, motivation, planning and forecasting, modifier of perceived organisational reality, political and authorisation. It should be noted that while the budgetary roles have provided a helpful vehicle for structuring the development of the model of brand valuation's organisational and behavioural implications, considerable judgment is bound to be exercised when transposing a budgetary role into a brand value implication. Doubtlessly some would have made this transposition differently from the manner in which it has been made in this study.

A diagrammatic representation of the model is presented in Figure 2, with the budgetary roles underlying the model's development identified in the first column. The numbers in the boxes in this figure correspond to the 12 organisational/behavioural brand valuation propositions elaborated on later in this section. Each proposition has been operationalised in the form of a question (see Appendix). Also included in the model are conjectured implications that the propositions carry for a variety of intervening factors and, ultimately, brand value. In a nutshell, the model suggests how the organisational and behavioural effects of periodically valuing brands are expected to influence long-term brand management performance. The empirical phase of the study is concerned only with testing the relative strength of the numbered propositions and not with testing the relationship between the model's parameters and brand values. The discussion in the remainder of this section will be structured by the budgetary roles presented in Figure 2.

Performance Evaluation Role

Following the theoretical (1981) and empirical (1983) work of Hirst, two propositions carrying conflicting implications for the efficacy of using brand valuation as a performance measure have been formulated.

The first proposition relates to Hirst's view that in situations of high task uncertainty (i.e., where there is minimal appreciation of the cause-effect relationship pertaining to a task), a high reliance on accounting performance measures results in dysfunctional behavioural outcomes such as increased tension. The rationale supporting this view is that if the budgetee is unable to exercise a major influence over the outcome achieved, then it is inappropriate to measure that outcome as an indicator of the budgetee's performance. Hirst specifically refers to marketing as a function

characterised by high task uncertainty, an observation supported by evidence collected during the exploratory interview stage of this study. This leads us to suggest the following:

Proposition 1: Brand value represents an incomplete measure of a brand manager's performance

The second proposition derives from Hirst's (1981) hypothesis that accounting measurement of task performance results in greater clarity being afforded to the task. With respect to the present study, the task under investigation is brand management and the dimension of performance measured is brand value attained.

Task clarity is believed to be an important issue for brand managers. Evidence collected during exploratory interviews suggests that the brand management function is characterised by relatively high levels of ambiguity, and is often described in somewhat vague terms such as 'concerned with championing the interests of the brand'. This low level of clarity suggests that the 'task clarification' role of accounting performance measures may be particularly important in the context of brand management.

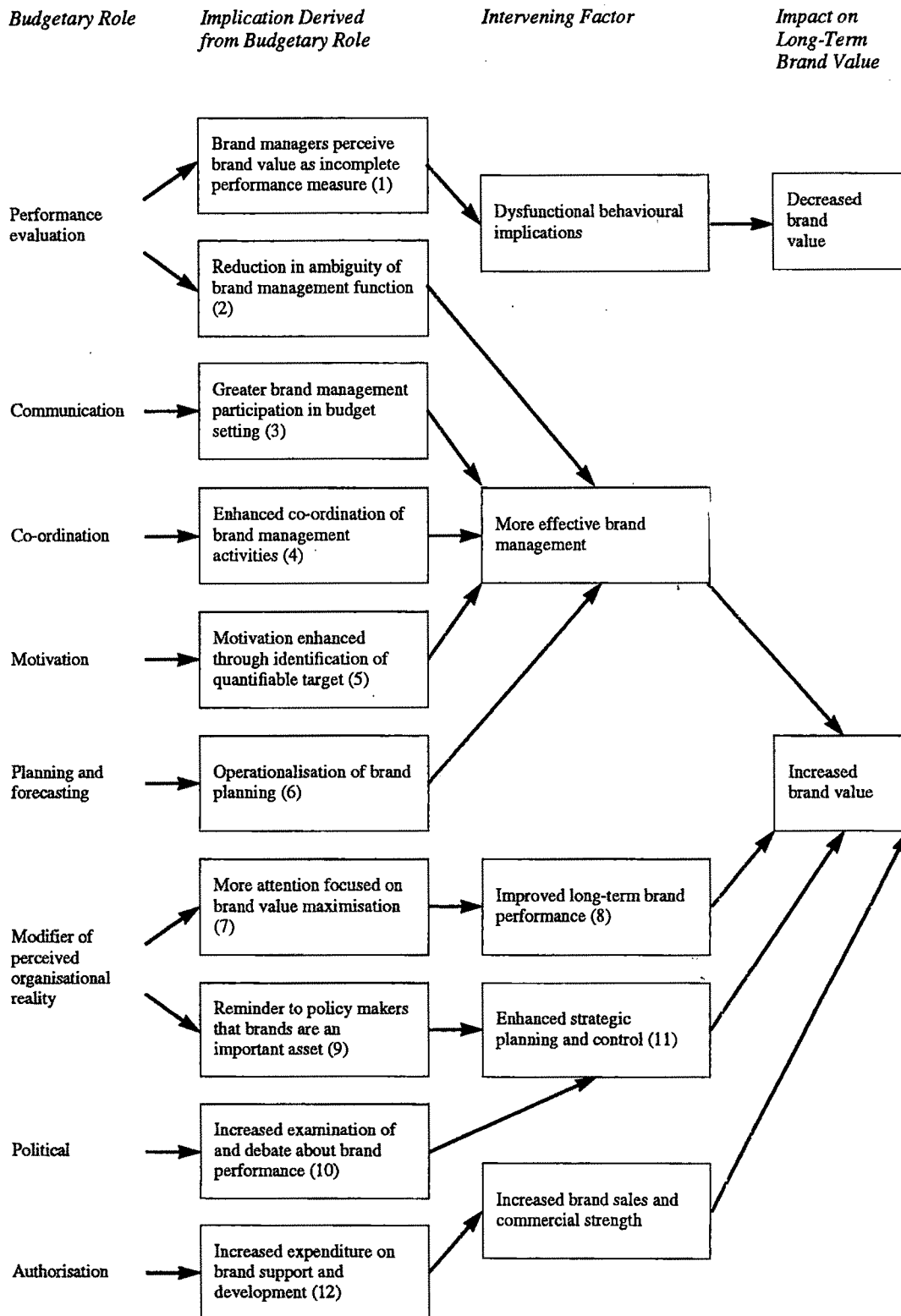
Proposition 2: Annual brand value assessment will reduce ambiguity in the objective of brand management

Communication Role

The importance of the budget as a basis of intra-organisational communication has been noted by Parker (1978). Just as intra-organisational communication is requisite to any detailed budgeting exercise, so it can be seen as fundamental to a detailed assessment of a brand's worth. More extensive communication between brand management and accounting staff involved in budgeting can be expected to result from any activities concerned with an appraisal of the underlying determinants of existing and budgeted brand values.

Greater communication between brand management and accounting staff, as well as greater brand manager involvement in budget-setting, are believed to be significant potential organisational developments. With respect to the former, it is widely held that the accounting-marketing interface suffers from being poorly developed (Rayburn, 1981; Wilson and Bancroft, 1983; Simmonds, 1986; Ratnatunga et al., 1989). With respect to the latter, while the considerable literature concerned with the implications of budgetary participation (e.g. Milani, 1975; Kenis, 1979; Brownell, 1982; Brownell and McInnes, 1986; Dunk, 1990; Kirby et al., 1991) has failed to produce conclusive findings, there is a strong consensus of opinion, that can be traced back to

Figure 2
Model of Organisational and Behavioural Implications of Brand Value Accounting



Hofstede (1967), that budgetary participation is desirable and consistent with effective management.

Proposition 3 is concerned with the implication that internal brand value accounting carries for brand manager budgetary participation. Consistent with the foregoing discussion, this proposition has been modelled in Figure 2 as carrying positive implications for brand management.

Proposition 3: Brand valuation will result in greater brand manager participation in budget-setting

Co-ordination Role

Descriptions of the use of budgets frequently associate the co-ordinating role with other budgetary roles. Emmanuel et al. (1990) consider the co-ordinating and communication functions of the budget under one heading, while Samuelson (1986) treats co-ordination as a sub-purpose of planning. The brand valuation exercise's potential to galvanise management towards the pursuit of a common goal (i.e., increased brand valuation) would appear to warrant the co-ordinating properties of brand valuation receiving an analysis that is independent of the planning and communication implications of the exercise.

Brand valuation offers a common frame of reference in a discussion between a manager wishing to harvest the brand and a manager wanting to provide the brand with increased promotional support. Harvesting the brand will have a positive impact on the brand's value through increased earnings, while providing greater promotional support will also have a positive impact on the brand's value via the positive implication for the brand's underlying strength. Arnold (1992) comments:

'It is possible that a complete brand valuation or "brand audit" will bridge the gap between two forms of analysis, or two sets of information, which have traditionally never met in many companies: short-term financial assessment and long-term strategic analysis.' (p. 214)

It would be misleading to suggest that brand valuation methods have reached a point where they can be scientifically applied. Nevertheless, periodic brand value assessment may reinforce a common point of reference that can further the co-ordination of brand management decision making. This development has again been modelled as carrying positive implications for effective brand management and long-term brand value.

Proposition 4: Annual brand value assessment will result in improved co-ordination of brand management activities

Motivation Role

Reviews of psychology studies (e.g. Locke et al., 1981) concur that the use of specific hard goals results in better performance than 'do your best' or no goals. These findings are supported by a study conducted in a commercial setting by Meyer, Kay and French (1965). Ronen and Livingstone (1975) suggest that motivation can be enhanced through task clarification. They also see greater participation as being consistent with the expectancy model of motivation.

With respect to brand value accounting, task clarification is closely associated with the reduction of role ambiguity that was discussed in connection with Proposition 2, and participation was the subject of Proposition 3. Taken together, these two issues suggest increased motivation associated with brand value accounting. For this reason, and because motivation is widely recognised as a distinct role of the budget, Proposition 5, which is concerned with the potentially motivating properties of brand valuation, has been formulated. This potential has been modelled as carrying a positive implication for long-term brand value.

Proposition 5: Holding brand management accountable for brand value will motivate brand managers towards higher performance

Forecasting and Planning Role

The significance of the budget's forecasting and planning roles is noted by Samuelson (1986), Imhoff (1986) and Lyne (1988). Imhoff (1986) reports that companies often take up to four months to complete the forecasting process and that sales forecasts are revised an average of five times. In connection with his empirical study that provided support for the view that forecasting is the most important role of the budget, Lyne (1988) notes that little has been written on the budget's forecasting and planning roles, and suggests that this may be because they are of such fundamental importance.

In a similar manner to the budget, periodic brand valuations may formalise and facilitate planning and forecasting activities. Any assessment of a brand's worth is bound to focus management's attention on the organisation's aspirations for the brand, i.e., where it is going and how it is to get there. With respect to the impact that brand value accounting carries for planning, Birkin (1992) comments:

'Brand evaluation clearly and systematically points to where the money is needed most, and helps the brand owner to avoid either spending his overall spend too thinly, or pushing his budget in the wrong direction.' (p. 197)

The discipline the budget imparts to the planning and forecasting exercise has been noted in Proposition 6, and this proposition has been modelled as carrying positive implications for effective brand management.

Proposition 6: The need to develop a budgeted figure for brand value will impose a discipline that results in more complete and thorough planning by brand managers

Modifying Perceived Organisational Reality Role

A distinction was drawn earlier between the budget's more and less technically-orientated roles. The budgetary implication of 'modifying perceived organisational reality' represents one of the budget's less technically-orientated roles. While the normative literature on budgeting generally fails to recognise the less technically-orientated roles, in recent years they have been the subject of increasing levels of interest from accounting researchers. Theorists who see the budget in these alternative roles include Wildavsky (1979), Burchell et al. (1980), Cooper et al. (1981), Bruns and Kaplan (1987) and Covaleski and Dirsmith (1988).

One manifestation of the budget as a modifier of perceived organisational reality was observed by Ridgway (1956), who noted that requiring organisational members to report certain types of information caused them to view this information as important. This finding has widespread support from theorists and empiricists alike, for example, Lerner and Rappaport (1968), Ijiri (1975), Prakash and Rappaport (1977), Burchell et al. (1980) and Dirsmith and Lewis (1982).

Following this school of thought it would appear that the introduction of brand value accounting may result in increased importance associated with maximising brand value. In effect, brand value accounting may affect the generally conceived mission of the company. During the interview phases of the study several interviewees felt that the inception of brand value accounting would give rise to greater emphasis placed on the pursuit of maximising brand values.

Proposition 7: Annual brand value assessment will result in brand managers focusing more attention on maximising brand value

Associated with this increased importance of brand value maximisation is the impact it will carry for the brand's long-term performance. Increased importance associated with brand values is consistent with greater emphasis placed on the brand's long-term performance. This is because a brand's value is not only influenced by current levels of earnings and sales (traditional modes of accounting performance measurement), but also by its ability to sustain and build on these levels in the future. This second aspect of a brand's worth

invokes the long term, a dimension that is not present in traditional accounting measures of performance. The introduction of this second dimension can be expected to result in a reconception of the relevant dimensions of a brand's performance, with an increased emphasis attached to the brand's commercial robustness over the longer term (Guilding, 1992). One of the managers interviewed during the case study commented:

'There is no doubt that the accounting numbers instil a tendency to be short-termist. Brand valuation may counter this.'

Proposition 8: The adoption of annual brand valuation as a performance indicator will result in improved long-term brand performance

The importance of the budget as a modifier of perceived organisational reality is believed to be such that it warrants a further proposition concerned with the implications that brand valuation carries for corporate policy makers' perceptions of the importance of brands. This proposition has been modelled as associated with enhanced strategic planning and control.

Proposition 9: The inclusion of brand value on the balance sheet will act as a powerful reminder to company policy-makers that brands are an important asset

Political Role

Another of the less technical roles of the budget is the political implications associated with budget-setting and control. Many political implications surround accounting. For this reason, the derivation of related brand value implications is particularly problematical. Notwithstanding this concern, the following comments made by Hopwood appear to carry particular relevance for this study. Referring to accounting he comments:

'By making visible what was previously unknown, it can open up different areas of the organisation for examination and debate.' (1984)

The inclusion of brand value in the organisations' internally-generated accounts represents an excellent example of 'making visible what was previously unknown'. A study appraising the internal implications of accounting recognition of brand value appears to be a highly appropriate vehicle for assessing the strength of the effect referred to by Hopwood.

An assessment of brand value necessitates a comprehensive review of brand performance. Such a review can be expected to stimulate inquiry into an appropriate marketing strategy for increasing brand value. Brand valuation can thus be seen as a vehicle that will stimulate debate on matters pertaining to the brand's present and future value.

By focusing on economic value, the debate centres more on output (i.e., sustainable growth through competitive advantage) rather than input (i.e., deviations from budget levels of expenditure on brand support). Again, this development has been modelled as carrying positive implications for strategic planning and control.

Proposition 10: Brand valuation will result in an increased examination of, and debate about, brand performance

Propositions 1–8 relate more to operational than strategic levels of management. Propositions 9 and 10, however, impinge more on strategic aspects of management. The importance of this distinction was discerned during interviews conducted. One manager interviewed during the case study commented:

'I think brand valuation is extremely useful, we should all be doing it. It is the one way of allocating priority in the company. In a company such as ours, with 30–40 brands fighting for resources, it would help provide the board with direction as to which brands they should exploit, dispose of etc ... I definitely see it providing, information for strategic decision-making.'

In connection with this view, Proposition 11, which is concerned with the impact of brand valuation on strategic planning and control, has been formulated. Figure 2 postulates that the organisational implications associated with Propositions 9 and 10 enhance strategic planning and control and carry positive implications for long-term brand value.

Proposition 11: Annual brand valuation will result in enhanced strategic brand planning and control

Authorisation Role

The importance of the authorisation role of budgeting should not be underestimated. This role is most evident in the context of discretionary expenditure (Emmanuel et al., 1990), and the vast majority of brand support and development expenditure is of a discretionary nature. Merchant (1985) provides support for the view that accounting-based controls are the most important organisational controls over discretionary expenditure.

The allocation of the marketing support budget amongst a company's brand portfolio establishes authorised levels of brand manager expenditure. Brunsson (1990) notes that the concept of responsibility allocation is closely associated with the budget's authorisation role. Any implication that brand valuation may carry for the level of financial support allocated to brands thus carries a related

impact on the degree of responsibility assumed by brand management.

Brand value accounting may affect the total amount of the organisation's funds authorised for brand support and development. As was inferred above in connection with the modification of perceived organisational reality, the internal accounting recognition of brand value is expected to accentuate the perceived importance of developing the brand's underlying commercial strength. Such a changed perception is consistent with an increase in the proportion of company expenditure dedicated to brand development. Proposition 12 has been modelled as resulting in an increase in the brand's sales, commercial robustness and long-term value.

Proposition 12: Brand value recognition in the company's balance sheet will result, over the long term, in increased expenditure on brand support and development

Research method

The primary data collection phase involved the administration of a mailed questionnaire. Secondary research methods involved a series of exploratory interviews and a case study. As has already been seen, the exploratory and case study interviews have informed the formulation and rationalisation of the 12 propositions.

The Questionnaire Survey

Operationalisation of the propositions required that several be slightly reworded. As was noted above, the 12 propositions correspond to the 12 questions presented in the Appendix.

The questionnaire was mailed to 322 finance and marketing directors in 161 strongly-branded British-based fast-moving consumer goods (FMCG) companies (two directors per company). A stratified sampling procedure was employed in order to ensure a representation of the owners of the leading UK FMCG brands, other FMCG brands, and also directors with experience in brand valuation. The stratified sample was achieved by drawing on the following sampling frame which is believed to provide the basis for a fairly representative sample of the British FMCG industry:

(i) The Nielsen/Marketing listing of the leading grocery brands (*Marketing*, 1990). This listing provided 33 companies.

(ii) Owners of FMCG brands identified in the *Advertisers Annual* (1989). This listing provided 85 companies.

(iii) Clients of one of the leading firms of brand valuers. This source provided a further 43 companies.

The first questionnaire mailing resulted in 90 responses and a second mailing yielded a further 50 responses. The final response rate was thus approximately 43%.

Two approaches were taken to investigate for potential non-response bias. First, an attempt was made to contact 32 of the directors that failed to return the questionnaire. When providing reasons for failure to participate in the survey no director cited any disposition either in favour or in opposition to brand valuation. The most commonly cited reasons for not responding to the invitation to participate in the survey were not enough time (21 directors) and lack of interest (five directors). Attempts to contact one of the directors proved to be unsuccessful.

The second investigation of potential sampling bias involved a comparison of responses provided by those directors responding to the first questionnaire mailing with those responding to the second. Nothing suggestive of a difference between those responding to the first mailing and the apparently more reluctant respondents who responded to the second mailing was noted.

Exploratory Interviews

A series of exploratory, semi-structured interviews were conducted at the outset of the research project. During the development of the questionnaire items, interviews were conducted with six senior accountants and five senior marketers in seven companies that have conducted brand valuations.

Case Study

Following analysis of the survey data, a case study was conducted in a large strongly-branded FMCG company. The case study involved document inspection as well as nine semi-structured audio-taped interviews with brand managers.

Findings

With the exception of one, all managers interviewed during the case study and exploratory interview phases of the study saw beneficial managerial implications arising from brand valuation. The manager who saw no beneficial implications resulting from brand valuation commented:

'I am sceptical about benefits arising from the valuation as I see it as an algorithmic process that may be subjected to a slanted brand management's input designed to bias the process.'

Most managers recognised the subjectivity involved in the exercise, but felt that it does not preclude brand valuation carrying significant internal implications. One manager felt the exercise introduced greater objectivity to brand management:

'It would be useful to have an objective appraisal of the brand's value which could be monitored over time. It may help the brand manager's cause as it might express in black and white the things that the brand manager subjectively feels and would like to pass on to superiors.'

With respect to data collected by the mailed survey, Table 1 presents three mean scores computed for each of the propositions: the mean score for all respondents; the mean score for finance-orientated management only; and the mean score for marketing-orientated management only. Standard deviations of the whole sample and t-values resulting from a t-test analysis of differences between the two functional areas are presented in the second and final columns, respectively. The items have been ordered by descending mean score recorded by all respondents.

Sixty respondents carried a finance-orientated job designation and 56 a marketing-orientated one. Twenty-four respondents did not fall into either group (e.g. managing directors). These respondents were included in the analysis of the whole sample but excluded from the analysis by functional area.

The means of the scores recorded by the entire sample to the 12 questions tend towards the mid-point of the scale (i.e. 4). An investigation of the mean scores reveals a suggestion that the higher-ranking perceived benefits of brand valuation tend to have more of a long-term, strategic orientation compared with the lower ranking perceived benefits.¹ Anthony (1988) distinguishes strategic levels from other levels of management, noting that strategic planning concerns setting and changing overall corporate strategies and objectives. This strategic focus can be contrasted with a more inward-looking, short-term focus concerned with efficient use of resources.

In order to investigate further for any pattern in the responses to the 12 propositional statements, a factor analysis was conducted. The principal component method of extraction with varimax rotation was used. This yielded two factors with eigenvalues greater than 1 (Table 2). Table 3 reports the factor loadings of the final analysis with two factors.

¹One should qualify the results of an analysis of this table. This is because the wording of the proposition, and not just the 'proposition message' that one wishes to convey, may affect relative ranking. If question 9 ('the inclusion of brand value on the balance sheet acts as a powerful reminder to company policy makers that brands are an important asset'), had been reworded so that the word 'strong' was used instead of 'powerful', one can question whether it would have received the highest mean score. This is one example of the many ways in which an apparently simple relationship can be conveyed using different words. As an apparently insignificant word change slightly affects the proposition conveyed, it is believed to be more appropriate to discuss findings in general terms, rather than to conduct a discussion of findings made at the individual proposition level.

Table 1
Summary Statistics of Brand Valuation Propositions

<i>Item</i>	<i>Item description</i>	<i>Mean total sample n = 140</i>	<i>Standard deviation total sample n = 140</i>	<i>Mean finance managers n = 60</i>	<i>Mean marketing managers n = 56</i>	<i>t-value</i>
9	Policy reminder	4.37	1.995	3.79	4.83	-2.7*
10	Increased debate	4.20	1.753	3.91	4.38	-1.4
7	Brand value maximisation	4.15	1.717	3.86	4.35	-1.5
11	Improved strategic planning	4.00	1.764	3.69	4.23	-1.6
8	Improved long-term performance	3.96	1.640	3.96	3.92	0.14
5	Enhanced motivation	3.90	1.859	3.71	4.04	-0.90
1	Improved performance appraisal	3.76	1.758	3.52	3.76	-0.73
6	Improved planning	3.66	1.678	3.60	3.90	-0.90
2	Reduced ambiguity	3.58	1.671	3.54	3.62	-0.24
12	Increased brand support	3.58	1.648	3.02	3.78	-2.5**
4	Improved co-ordination	3.44	1.751	3.30	3.50	-0.57
3	Greater budget participation	3.38	1.707	3.15	3.39	-0.70

*Statistically significant at the 0.01 confidence level

**Statistically significant at the 0.05 confidence level

The overriding finding of the factor analysis is the strength of factor 1. As all items load heavily on this factor, it would appear that responses to the propositional items were heavily influenced by a 'general attitude' to the merits of brand valuation. The factor analysis generated only one further factor with an eigenvalue greater than 1. Two items load more heavily on the second factor than the first and are concerned with the implication that brand valuation carries for company policy (Proposition 9) and the level of company expenditure devoted to brand development (Proposition 12). These two implications appear related to the only other proposition that has a loading in excess of 0.5 on the second factor, i.e., enhanced strategic planning (Proposition 11). Propositions 9, 11 and 12 contain the words 'policy', 'strategic' and 'long-term', respectively. These words suggest that factor 2 is related to the long-term, strategic implications of brand valuation. Investigation of the eigenvalue scree plot indicated a levelling-off at factor 2. This, combined with the fact that factor 2's eigenvalue is only marginally greater than 1, signifies that it would be misleading to attach a high degree of

confidence to any investigation of factor 2, however.

Stronger support for distinguishing between strategically- and operationally-orientated brand valuation benefits was provided in the interviews conducted during the exploratory and case study phases of the study. All interviewees expressing an opinion on this issue felt that the organisational and behavioural implications of brand valuation are more strategically- than operationally-orientated. Typical of these comments is the following view expressed by a case study interviewee:

'... [brand valuation] is good because it is a tool that forces us to ruthlessly look at our brand equities ... It forces you to stand back and look in a more objective way at your brand's stature ... I see it more as a strategic than an operating tool.'

The importance of political implications associated with attaching an accounting number to a business asset, which has hitherto not been monitored, is particularly evident in the following comment made by a chief accountant during one of the exploratory interviews:

'One should not underestimate the political implications of brand valuation. Everyone thinks that they understand brands and everyone thinks they know how to manage them. One thing I've learned from listening to a lot of discussion on brand management is that most people don't know how to run a brand. It is a highly politically-charged area of the business. My company is fairly apolitical, but nevertheless, in marketing, because

Table 2
Principal Components
Factor Analysis of Attitude to Brand Valuation Propositions

<i>Factor</i>	<i>Eigenvalue</i>	<i>% of Var</i>
1	8.47754	65.2
2	1.07881	8.3

N.B. Includes only factors with eigenvalues > 1

Table 3
Orthogonal Rotation of Principal Components Factor Analysis

<i>Proposition description and number</i>	<i>Factor 1</i>	<i>Factor 2</i>
More complete planning (6)	0.84406	0.23303
Improved co-ordination (4)	0.84009	0.21548
Greater motivation (5)	0.83982	0.28718
Brand management performance measure (1)	0.79816	0.32240
Reduce ambiguity in brand management (2)	0.79793	0.25222
Greater budgetary participation (3)	0.78812	0.27468
Increased debate on brand performance (10)	0.75546	0.46071
Focus on maximising brand value (7)	0.75456	0.39560
Improved long-term performance (8)	0.75029	0.36022
Enhanced strategic planning and control (11)	0.72239	0.52471
Reminder of brands' importance (9)	0.24931	0.84989
Increased expenditure on brand support (12)	0.41770	0.70466

there is nothing hard that comes out at the end of it, it gets more political. It is much easier to assess something that has a number attached to it, and hopefully brand valuation as a measure will reduce the politicality associated with marketing.'

This comment alludes to the potential rift between marketing and accounting cultures discussed earlier. It hints at the organisational politics of the marketing function relative to finance. This can be related to the politics of instantiating an organisation's strategic thinking.

With respect to different attitudes held by marketing and finance directors, the results of the questionnaire survey offer some support for the view that marketing directors perceive greater internal benefits arising from brand value accounting. With the exception of one (improved long-term performance), all items were ranked higher by the marketing directors. This difference is statistically significant for 'policy reminder' ($p < 0.01$) and 'increased brand support' ($p < 0.05$). The implication of this finding is discussed in the concluding section.

Conclusion and general discussion

A model of the organisational and behavioural implications of brand value accounting has been developed, and the relative strength of elements of the model investigated. This investigation was facilitated by data gathered through an opinion survey of 140 managers (mostly in marketing and finance) and exploratory and case study interview data collected in strongly-branded companies.

During the exploratory interview stage of the study, it was found that, initially, the primary reason for valuing brands was a desire to capitalise brand values in the published balance sheets. Interviewees also referred to beneficial managerial im-

plications arising from brand valuations, however. This view was extremely strong in one company where it was claimed that annual brand valuation would continue even if accounting standards were to prohibit capitalisation in the published accounts. This finding provided the impetus for developing the model.

The limited robustness of the model is evident when one considers the relationship of Proposition 8—'The adoption of annual brand valuation as a performance indicator will result in improved long-term brand performance'—with the other propositions. Many of the other propositions are also consistent with improved long-term brand performance. However, it is believed that Propositions 7, 9, 10 and 11 have more of a long-term orientation. This shortcoming of the model highlights the fact that linkages made between the various implications of brand valuation are intended to indicate relative rather than absolute relationships.

A second shortcoming of the paper's analysis stems from the fact that no attempt has been made to link the parameters underlying the model to brand values. To have attempted to do so would have presented profound methodological problems. Rather, the model's parameters were developed for the purpose of appraising attitudes towards organisational and behavioural implications arising from valuing brands. These parameters have been developed by drawing on budgetary roles referred to in the literature. This approach was adopted as part of an attempt to develop a more complete listing of brand value accounting implications. Transposing the budgetary roles into brand value implications requires judgment, and the subjectivity involved in this exercise has to be acknowledged. Associated with this issue is the fact that the boundaries between the various implications of brand value accounting are not discrete. Despite these limitations, it is

believed that the model carries several meritorious aspects:

(1) It provides an original perspective on the organisational and behavioural implications associated with accounting for a 'new' asset.

(2) It provides a succinct outline of the general proposition, put forward in this paper, that brand value accounting may carry organisational benefits for the brand-owning company.

One finding emanating from the empirical phase of the study is a suggestion that perceived organisational and behavioural benefits arising from brand accounting tend to be somewhat more strongly associated with longer-term, strategic management issues rather than short-term operational issues. Of the 12 brand valuation implications analysed, the top five ranking implications are concerned with such matters as policy-making, long-term performance, debate on performance and strategic planning. The interviews conducted provided strong support for this view. However, only weak support was evident in the factor analysis of survey data.

A second finding of the study is the support given to the view that marketing directors perceive greater internal benefits arising from brand value accounting than finance directors do. This finding provides further evidence of a widely commented upon cultural divide that characterises the marketing/accounting interface (Wilson and Bancroft, 1983; Simmonds, 1986; Ratnatunga et al., 1989).

Two explanations for this difference are offered. First, one would expect that any implications arising from accounting recognition of intangible marketing assets (Guilding and Pike, 1990) would be more acutely felt by marketing management. Second, marketers do not have to wrestle with the inconsistent nature of brand value accounting and the conventional historical cost-based accounting model. Marketing management is used to dealing with more subjective information oriented to the external environment and the future. This underlines the cultural conflict implicit to the marketing/accounting interface, as accounting information tends to be inward-looking, historical and have less of a subjective orientation. The culture of the marketing function can more easily embrace the level of subjectivity involved in a brand valuation than can the accounting function.

Brand value accounting has been the subject of considerable recent financial accounting debate. Consistent with the recent call made by Barwise (1993), this paper has attempted to widen the debate and consider the organisational implications of brand value accounting. This alternative perspective also raises the relevance of the debate to those countries where financial accounting standards do not allow the capitalisation of period-

ically-valued intangible assets. If benefits are to be derived from including periodically-valued intangible assets in the internal accounting system, there would appear to be a strong case for the internal accounting system moving away from the policies adopted by its financial accounting counterpart. Such a move would partially rectify criticisms levied at management accounting for failing to develop alternative accounting methods (Rappaport, 1978; Kaplan, 1983; Hiromoto, 1988).

The approach described in this paper is one of many where accounting may be able to aid brand management. Marketing research is taking a very keen interest in the potential of accounting for brands. For example, Farquhar and Ijiri (1993) advocate a new system of accounting, 'momentum accounting', to help manage brands, decomposing and tracking those elements of brand performance that build up long-term brand value. With an apparent growing interest in brand management, we believe that further research addressing the potential of brand valuation, momentum accounting and other brand accounting systems that depart from the traditional accounting model, is called for.

Appendix

The respondent scored each of the following questions on a Likert scale ranging from '1' to '7', where '1' represents low (i.e. 'Not at all') and '7' represents high (i.e. 'To a large extent').

In your opinion, to what extent would:

1. Annual brand value assessment represent a helpful technique for appraising the performance of brand management?
2. Annual brand value assessment reduce ambiguity in the objective of brand management?
3. Including brand value in the budget result in greater brand manager participation in budget setting?
4. Annual brand value assessment result in improved co-ordination of brand management activities?
5. Holding brand management accountable for brand value motivate brand managers towards higher performance?
6. Annual brand value assessment impose a discipline that results in more complete and thorough planning by brand managers?
7. Annual brand value assessment result in brand managers focusing more attention on maximising brand value?
8. The adoption of annual brand valuation as a performance indicator result in improved long-term brand performance?

9. The inclusion of brand value on the balance sheet act as a powerful reminder to company policy makers that brands are an important asset?
10. Annual brand value assessment result in an increased examination and debate of brand performance?
11. Annual brand valuation result in enhanced strategic brand planning and control?
12. Brand value recognition in the company's balance sheet result, over the long term, in increased expenditure on brand support and development?

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Synergy or New Information as a Source of Wealth Change in Acquisitions: The Case of Abandoned Bids

Robin J. Limmack*

Abstract—Potential sources of wealth change from acquisition are claimed to include both the opportunity for synergistic benefits and new information about the companies involved. New information may involve revaluation of previously undervalued or under-utilised assets. In the current study analysis is undertaken of the pattern of returns to targets in abandoned bids in the UK which were initiated during the period 1977-1986. The results provide evidence to support the view that acquisitions are undertaken not only for synergistic reasons but also to acquire previously under-utilised assets. The results also provide support for the hypothesis that the market for corporate control acts as one of the disciplinary mechanisms to improve corporate profitability.

Introduction

A number of writers have attempted to analyse the nature of takeover bids in conditions of asymmetric information. Grossman and Hart (1980, 1981), for example, distinguish between allocational and acquisitional bids, with the latter category representing a situation in which different perceptions exist for the value of the target company. Dodd and Ruback (1977) and Bradley, Desai and Kim (1983) attempt to distinguish between informational and other motives for acquisitions.

In the absence of information asymmetries there would be a reduced incentive for target shareholders to reject bids, although there may well be incentives for the management of these companies to offer resistance. Davidson (1985) argues that the potential for synergy gains should lead to positive value gains to shareholders of both target and bidder company 'even if the target firm's shareholders have inferior information' (p. 385) concerning the future prospects of the combined firm. Barnes, Chakravarty and Haslam (1990) re-examine Davidson's argument following the introduction of the possibility of asymmetry in bargaining power between the bidder and target management.

They identify an incentive to provide misinformation on potential synergy gains which, it is argued, leads to the possibility that a bid motivated by synergistic reasons may nevertheless be unsuccessful. Incentives do exist for target company shareholders to hold out for better terms under conditions in which they possess full knowledge of the potential gains from the takeover (Kreps, 1990, pp. 725-726). In this scenario, the target shareholders may resist any bid in which the present value of potential gains is not included in the bid price. The incentive for the bidder to proceed is therefore also reduced, leading to a sub-optimal level of takeover activity both in the aggregate and at the individual level.

Although the current paper investigates unsuccessful takeover bids, we are less concerned with those factors that lead to bid rejection than with those that initially triggered the bid. In particular, the study investigates the returns to shareholders in unsuccessful bids to test for the presence of informational bids of the type described by Bradley, Desai and Kim. We extend their methodology to distinguish between pure informational bids, i.e., those involving a revaluation of resources in their current state, and those leading to an increase in economic efficiency, the so-called 'kick-up-the-backside' hypothesis.

The remainder of this paper is organised as follows: the next section provides a brief review of the categories of takeover bids under investigation, together with evidence from previous studies; section three includes a description of the data, the methodology and the hypotheses tested; section four presents an interpretation of the results; and the final section provides the summary and conclusions of the study.

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Takeover categories and previous evidence

A variety of possible motives for acquisition activity have been identified, with many different groupings of acquisition type. For the purposes of the current study, we begin with the classification used by Grossman and Hart (1980, 1981) who distinguish two categories of bid. The first category, 'allocational' bids, involves the identification and acquisition of firms currently being run inefficiently. Replacement of inefficient management following acquisition leads to a net increase in economic wealth, provided that the costs of acquisition do not outweigh the benefits of increased efficiency. By contrast, 'acquisitional' bids occur when a bidder obtains special information about a target firm indicating that the latter is worth more in its present state than the current market value of the target would suggest. Acquisitional bids imply a form of market mispricing and are claimed to give rise to underinvestment as '... shareholders are unable to capture the true benefits of their investments' (Grossman and Hart, 1981, p. 253).

A similar categorisation to that of Grossman and Hart is provided by Bradley, Desai and Kim (1983) who distinguish between 'synergistic' and 'new information' motives for acquisition. Synergistic bids involve 'an attempt ... to exploit some specialised resource by gaining control of the target and implementing a higher-valued operating strategy' (p. 183). Synergistic bids may be identified with allocational bids described above. According to Bradley et al., bids that are motivated by new information may arise in two forms. The first is similar to that described by Grossman and Hart as an acquisitional bid, with the bidding process revealing new information about the target, leading investors to revise their current valuation of that firm.¹ In the second form, the information released during the bidding process allows the current management to implement new strategies, producing a revaluation of the target company, the benefits of which can be captured by existing shareholders. The second form of informationally motivated bids appears therefore to contain some of the characteristics of both an allocational and an acquisitional bid. The distinction between the two broad categories of bid identified by Bradley et al. is that the economic benefits which may accrue are only available in synergistic bids if ownership of the target is transferred. Bids motivated by new information, however, should lead to a positive revaluation of the target, irrespective of whether the bid is successful or not.

It is possible that actions undertaken by target management to frustrate the bid may appropriate part of the potential gains from revaluation (Kreps, 1990). Frustrating tactics may be present in bids motivated either by new information or potential synergies. The level of appropriation, however, would need to be fairly substantial in order to frustrate the bid, given the reported size of target bid premium.²

In order to test for the presence and impact of informationally motivated bids, researchers have focused attention on unsuccessful takeovers. In one of the first papers published on returns to shareholders in unsuccessful bids, Dodd and Ruback (1977) attempted to distinguish synergy and monopoly power motives for acquisitions from what they described as 'the internal efficiency hypothesis'. The study involved an analysis of returns to shareholders of US companies involved in both successful³ and unsuccessful tender offers.⁴ Dodd and Ruback identified positive abnormal returns to shareholders of target companies in unsuccessful bids which were retained following failure of the tender offer. The authors therefore concluded that the results were consistent with their 'internal efficiency' hypothesis. However, they also acknowledged that the results may also be consistent with the 'expectations of future monopoly or synergistic gains from mergers' (ibid., p. 370). In contrast to the above, Asquith (1983) reported that in unsuccessful mergers, 'the market reverses the initial positive excess returns for both target and bidding firms' (p. 80). The selection criteria adopted by Asquith for abandoned bids included only those targets for which no subsequent bid was received for at least one year following abandonment of the initial bid. His results, therefore, provide support for the hypothesis that the source of the initial wealth change was potential synergies. Because of the selection criteria adopted, however, the results do not rule out the possibility that some bids are motivated by new information about the target company.

A study by Bradley, Desai and Kim (1983) provided further evidence on the source of wealth changes in tender offers. By separating targets in unsuccessful offers into two groups—those subsequently acquired and those that remained independent—Bradley et al. argued that it was possible to distinguish between the synergy and informational hypothesis for acquisitions. It was argued that acquisitions motivated by informational

¹Scherer (1988) provides an argument whereby short-term market inefficiency can lead to an undervaluation by the market of the income stream expected to flow from the target's assets.

²Indeed, as share options are now one of the major elements in remuneration packages, managers also have an incentive to protect share prices.

³Success was defined according to criteria that attempted to assess whether effective control of the target was transferred.

⁴A tender offer in the US involves a bid for a block of shares in another company at a specified price. The tendering company is under no obligation to tender for all the shares of the target.

reasons would lead to a permanent revaluation of the shares of the target company, irrespective of whether that company was acquired or not. However, if bids were motivated by synergistic reasons, then gains obtained by targets in unsuccessful bids would only be retained if there was a probability that the target would be the object of subsequent, ultimately successful, bids. Bradley et al. found that, consistent with Dodd and Ruback's earlier findings, targets in unsuccessful bids on average retained a significant positive abnormal return following abandonment of the bid. However, the authors also found that 'this revaluation is due primarily to the emergence of and/or anticipation of another acquisition bid' (*ibid.*, pp. 186–187). The share prices of targets not subject to subsequent bids within five years of the unsuccessful offer fell back to their pre-offer level. Bradley et al. concluded that the evidence was consistent with the synergistic rather than the informational hypothesis. Further support for their conclusion was provided by an analysis of the returns to shareholders of bidding firms involved in unsuccessful tender offers. Bradley et al. reported that when a target in an unsuccessful bid was acquired by a competitor, shareholders of the unsuccessful bidding firm suffered significant wealth losses. By contrast, the shareholders of unsuccessful bidding firms experienced no wealth loss if the target continued to remain independent. They concluded that some target firms possessed special resources that were capable of exploitation by a number of bidders, but whose acquisition by a competitor would place the unsuccessful bidder at a competitive disadvantage. They also concluded that the above results provided further evidence to support the synergy hypothesis.

Further evidence against a new information motive for acquisitions was provided in a study by Pound (1988) of revisions to consensus earnings forecasts for targets following takeover. Pound was unable to identify any evidence that the bid itself provided new information about the target and concluded that '... the market perceives an insignificant proportion of bids to be predicted on prior undervaluation of targets' (p. 226).

Although the findings of the 1983 study by Bradley et al. suggest that gains from acquisitions are not simply due to a market reassessment of previously undervalued securities, they do not of themselves provide support for the existence of synergy gains. For example, Roll's (1986) 'hubris hypothesis' suggests that gains to target shareholders are at the expense of the bidding firm's shareholders. In order to determine whether acquisition activity merely involved wealth transfers from bidder to target company shareholders rather than net wealth increases, a later paper by Bradley, Desai and Kim (1988) measured net wealth changes to matched pairs of targets and bidders. They re-

ported that the combined value of their sample of matched pairs rose in 75% of the cases investigated. The authors concluded that, although most of the gains were obtained by target company shareholders, successful tenders did lead to significant synergistic gains and a more efficient allocation of resources. Further evidence on the presence and sources of gains in successful acquisitions are provided in Palepu (1986), Caves (1989), Bhagat, Shleifer and Vishny (1990), and Slusky and Caves (1991).

Empirical studies of UK acquisition activity have tended to concentrate on analysis of successful acquisitions. Studies by Firth (1980), Limmack (1991), and Parkinson and Dobbins (1993) have also reported abnormal returns to shareholders of targets which were retained following abandonment of unsuccessful bids. Firth's study reported that abnormal returns to shareholders of target companies actually increased over the three years following bid abandonment. Firth also reported that, following unsuccessful bids, bidders themselves obtained positive abnormal returns in the following 12 months. He described this latter result as consistent with the view that the market 'takes a pessimistic view of takeovers for the acquiring firm' (p. 250). In contrast, the study by Limmack (1991) reported that the shareholders of bidding firms suffered wealth losses over the two years following the bid's abandonment.

The studies reviewed above have all used security market data. Other UK studies that have used accounting data have been criticised as prone to potential measurement error, particularly in relation to measurement of post-bid performance for successful bidders (Appleyard, 1980). In a comprehensive review of these studies, Hughes (1989) concluded that '... while there is some variation across time periods, the acquired companies have worse short-term profitability growth records and are smaller, less dynamic, and somewhat less highly valued than companies on average. They do not however appear to be systematically less profitable on a medium-term basis' (p. 67). His conclusion suggests that for UK takeovers, at least, one of the prime motivations may be the opportunity to take advantage of a temporary undervaluation of the target rather than to correct a fundamental weakness in that target's management.

Data and methodology

The current study aims to test for evidence of the presence of the informational motive in UK takeover bids through an analysis of the returns to targets in abandoned bids. The sample of companies selected for analysis was extracted from the population of bids involving UK quoted companies, initiated during the period 1977–1986. Ad-

ditional data requirements for inclusion in the sample of failed targets were as follows:

- (i) the bid abandonment was announced by 31 December 1986;
- (ii) the company was listed on the London Share Price Database (LSPD) throughout the periods prior to and subsequent to the bid;
- (iii) returns data had to be available for at least 40 months of the five year period prior to the bid in order to allow estimation of market model parameters;
- (iv) the target company remained independent for a period of at least six months following abandonment of the original bid.

A total of 98 target companies satisfied the above criteria, 63 of which remained independent for at least five years following the bid (four years for bids undertaken in 1986).

In order to isolate the impact of the bid and its subsequent abandonment on the share prices of the companies involved, the variant of the Market Model developed by Fama, Fisher, Jensen and Roll (1969) was applied in the form:

$$\text{Log}_e(1 + R_{j,t}) = \alpha_j + \beta_j \text{Log}_e(1 + R_{m,t}) + U_{j,t} \quad (1)$$

where $R_{j,t}$ = Return on security j for period t , $R_{m,t}$ = Return on the market for period t and $U_{j,t}$ is the residual error term.

In order to test the sensitivity of the results to choice of control model, the analysis was repeated using two further models. First, a market-relative control was adopted, i.e., assuming an alpha of zero and a beta of one for all securities. Second, a variant of the Market Model described in Equation 1 above was used, but using betas (published in the Risk Measurement Service) that had been calculated on a trade to trade basis (see Dimson, 1979). As the results obtained were found to be insensitive to the choice of control model, the current paper reports the results from the application of one model only, the Market Model described in Equation 1 above.

One further possible source of measurement error, cited by Conn (1985) and others, is that the risk characteristics of companies involved in successful bids may change following the bid. Given that the current study is only concerned with targets in abandoned bids, that particular problem was not likely to influence the results.

Normally, multi-period abnormal returns are calculated by accumulating average abnormal returns for each period. However, the sample of target companies under analysis in the present study, by definition, included a number that would disappear (by acquisition) before the end of the analysis period. It was therefore decided to adopt instead the method of calculating total abnormal returns described by Franks and Harris (1989,

p. 232). Initially, 'total abnormal returns' (tar_j) are calculated for each security ' j ' in the sample over time period $t = 1$ to $t = n$. Average total abnormal returns (TAR) are then identified for each sample as:

$$TAR = \frac{1}{N} \sum_{j=1}^N \sum_{t=1}^n ar_{j,t} \quad (2)$$

with abnormal returns for each security cumulated from time $t = 1$ to $t = n$ and N being the number of securities in the sample.

The initial sample of target companies was subdivided into two further sub-samples according to whether the target remained independent over a period of five years following the abandonment of the initial bid or was acquired during that period. If bids are motivated only by the potential for synergistic gains, and not for informational reasons, then the share price of those targets remaining independent should eventually revert to the pre-bid level. The initial hypothesis to be tested therefore is as follows:

H₁: There is no significant wealth loss to the shareholders of those target companies which retain their independence following abandonment of the bid.

Returns to target companies in abandoned bids were measured initially over the period from three months prior to the bid month⁵ to the end of the outcome month. Targets in those bids for which synergistic benefits were the motivating force may continue to be perceived as potential takeover candidates for some considerable time following the abandonment of the initial bid. These targets may therefore also be expected to retain part of the initial wealth gains, although it is anticipated that as the likelihood of further bids diminishes over time these wealth gains would be lost. It is therefore hypothesised that, if the motive for the bid is synergistic benefits rather than information asymmetries, targets in abandoned bids which remain independent would retain a significantly lower amount of the bid-related wealth gains following abandonment than those targets subsequently acquired. Total abnormal returns (TARs) were therefore also calculated for each category of target over a period from three months prior to the bid month to 24 months following the outcome month.⁶ As this extended period would also capture share price

⁵The date of formal announcement of the bid was identified as the commencement date. Examination of newspaper references revealed prior speculation about a possible bid, although the speculation did not necessarily extend to the name of the possible bidder. In most cases the three month period prior to the bid included market reaction to the speculation. Tests on an extended pre-bid period resulted in no significant difference in the mean TARs or to the significance of the reported results.

⁶Bradley et al. analysed returns for 60 months following bid abandonment but found that any significant wealth changes occurred by the end of the first 24 months.

risks relating to further bids arising during that period, the sub-sample of subsequently acquired targets was further grouped according to whether the target was acquired during that period or in the three years thereafter. The following hypothesis was then tested:

H₂: The shares of target companies which remain independent following abandonment of the bid achieve post-abandonment abnormal returns which are no lower than those earned on the shares of targets which are subsequently acquired.

As described earlier, there are at least two categories of informationally motivated bids. One form of the new information hypothesis suggests that bids are motivated by the identification of firms undervalued by the market relative to the expected earnings flow. Such a situation would presumably arise only if the target is a member of a sector of the market that is not subject to rigorous scrutiny by analysts, possibly because the target is too small to command the attention of institutional investors. One possible test of this form of the information hypothesis would involve the relationship between returns to targets and firm size. A negative relationship between target size and the retention of bid-related wealth changes for targets that remained independent would provide tentative evidence to support this variation of the new information hypothesis. The following hypothesis is therefore tested:

H₃: There is no relationship between target size and post-bid wealth changes for targets which remained independent following abandonment of the bid.

The size of each company in the sample was computed by reference to the equity market capitalisation three months prior to formal bid announcement.

One of the problems that emerged in discussions on the current study was the difficulty in separating potential sources of benefit into only one of either synergistic or informational categories. Indeed, the opportunity for synergistic gains may itself be considered to be one example of the new information set.⁷ Grossman and Hart (1981) also allow for the possibility of bids that are partly acquisitional and partly allocational. They further argue that bids are more likely to occur when a bidder has inside information indicating that the target is currently undervalued on the market and that target company shareholders with rational expectations will realise this. Hence the bid itself will provide information to previously uninformed investors, who will then revise their valuation of the

target irrespective of whether the bid is successful or not (*ibid.*, p. 269).

The second form of the new information hypothesis, as proposed by Bradley et al. (1983), also blurs the distinction between a purely allocational and a purely acquisitional bid. This form describes targets which at the time of the bid are not performing to their potential. However, the bid itself may provide a spur to improved performance for the existing management who are able to retain control. Bradley et al. (1983) made no attempt in their analysis to distinguish between the two possible categories of informationally motivated bids, presumably because of their finding that the share price of those targets which remained independent returned to their pre-bid level. As described in the next section, however, the current study does provide evidence that appears to support the theory that some takeovers are motivated by new information. In order to distinguish between the two categories of informationally motivated bids, the current study investigates the relationship between the change in operating performance of the target subsequent to the bid and the retention of bid-related wealth changes. If bids are motivated by the identification of companies currently undervalued in their present state, then there is no necessary relationship between the two. A positive relationship between the two does, however, provide support for the second form of the new information hypothesis, i.e., the 'kick-up-the-backside' hypothesis. The final hypothesis tested, therefore, was as follows:

H₄: There is no significant relationship between the change in operating performance and post-bid wealth changes for targets which retained their independence.

Two accounting-based measures were selected to represent operating performance: return on shareholders funds⁸; and return on capital employed.⁹

The above two measures were collected from the Datastream¹⁰ online database for 43 target companies that retained their independence (Category 1) and for each corresponding industry group (i.e., Datastream level 6) for each of the following accounting periods: the two years preceding the year of the bid; the year of the bid; and the two years following the bid.

To adjust for possible industry-wide effects, a relative measure of performance (REL RET) was identified as the difference between the return for

⁸Defined as net profit after tax, minority interests and preference dividends divided by equity capital plus reserves and deferred tax, less intangibles.

⁹Defined as profit before tax and interest charges, divided by total capital employed (including borrowings repayable within one year) less intangibles.

¹⁰Datastream International is a subsidiary company of the Dun & Bradstreet Corporation.

⁷This point was brought to the attention of the author by G. Gniewosz.

the target company (ACC RET) and the return for the relevant industry group (IND RET).

$$REL\ RET_{j,t} = ACC\ RET_{j,t} - IND\ RET_t \quad (3)$$

where $ACC\ RET_{j,t}$ = Rate of return of target_j for period_t and $IND\ RET_t$ = Rate of return of industry for period_t.

Accounting performance during the year of the bid was excluded from further analysis because of possible influence by temporary factors associated with the bid defence. Average relative accounting rates of return were instead calculated for each target, first over the two years prior to the bid, and second, over the two years following the bid. A relative improvement/deterioration performance measure (RIPM) was then identified for each company as the change in the average relative return from the two years prior to the bid to the two years following the bid:

$$RIPM_j = \frac{(RELRET_{j,t+1} + RELRET_{j,t+2})}{2} - \frac{(RELRET_{j,t-1} + RELRET_{j,t-2})}{2} \quad (4)$$

where $t=0$ is the accounting period in which the bid was announced. Rates of return were averaged over two years in order to dampen down any possible effects of post-bid accounting changes.

The sub-sample of targets that retained their independence (Category 1) was then grouped according to whether the RIPM measure identified

post-abandonment deterioration or improvement in performance. Tests were then conducted of the difference in mean TAR returns for the two sub-groupings, both over the post-bid period month +1 to month +24, and over the full period month -3 to month +24. The results of these tests are provided in Table 5.

The use of accounting data as a measure of operating performance is not without its critics. Within the context of the above study of target companies, however, the criticisms made by Appleyard (1980) and others of post-outcome bias in bidder returns do not apply. In addition, although accounting returns are only a crude measure of real earnings and subject to potential manipulation, as Hughes (1989) notes, accounting measures remain '... an essential starting point for internal and external analysis of company performance, and evidence based on them is therefore of some interest' (p. 76).

Analysis and results

Table 1 presents selected summary statistics for the target companies, categorised by their subsequent status. As indicated, 63 of the total sample of 98 targets remained independent for at least five years after the bid. Table 1 also reports the results of tests of difference in the mean values of the summary statistics across sub-samples. The results of the tests indicate that neither size nor systematic risk appear to differ between the sub-samples.

Table 1

Characteristics of UK Target Companies in Abandoned Bids (1977-1986), Categorised According to the Subsequent Status of the Target*

Category of target	N	Size (£m)	Beta
1. Remaining independent for five years following bid abandonment	63	79.4 (25.6)	0.631 (0.054)
2. Acquired within two years	24	120.6 (77.2)	0.677 (0.068)
3. Acquired in years 3 to 5	11	98.5 (89.1)	0.607 (0.136)
4. Categories 2 and 3 combined	35	113.2 (58.6)	0.655 (0.062)
(a) Anova test of difference between means for Categories 1, 2 and 3		F = 0.03 p = 0.97	F = 0.15 p = 0.86
(b) Anova test of difference between means for Categories 1 and 4		F = 0.02 p = 0.89	F = 0.08 p = 0.78

*Size is represented by equity market capitalisation three months prior to bid announcement. Beta coefficients were identified using the logarithmic variant of the Market model. The reported F statistics suggest that there is no significant difference in the reported characteristics of the companies in each sub-sample. Figures in parentheses represent standard errors.

Table 2
Total Abnormal Returns (TAR) to UK Target Companies in Abandoned Bids (1977–1986), Categorised According to the Subsequent Status of the Target*

<i>Category of target</i>	<i>N</i>	<i>TAR month -3 to outcome %</i>	<i>TAR month +1 to +24 %</i>	<i>TAR month -3 to +24 %</i>
1. Remaining independent for five years following bid abandonment	63	27.06 ^a (5.53)	4.61 (8.00)	31.16 ^a (8.33)
2. Acquired within two years	24	37.58 ^a (8.14)	6.96 (7.54)	44.54 ^a (10.90)
3. Acquired in years 3 to 5	11	51.73 ^a (20.4)	-42.10 (23.10)	13.45 (39.00)
4. Categories 2 and 3 combined	35	42.03 ^a (8.38)	-7.47 (9.26)	34.77 ^b (14.20)
(a) Anova test of difference between means for Categories 1, 2 and 3		F = 1.54 p = 0.22	F = 3.16 ^b p = 0.05	F = 0.72 p = 0.49
(b) Anova test of difference between means for Categories 1 and 4		F = 2.38 p = 0.13	F = 0.93 p = 0.34	F = 0.03 p = 0.86

^aindicates significant at 1% level

^bindicates significant at 5% level

*Month 0 represents the month in which the bid was formally announced. N represents the number of companies in each sub-sample. Figures in parentheses represent standard errors.

Target Company Returns

Table 2 provides summary statistics of the returns to target companies in the various sub-categories. All categories of targets obtain significant positive wealth increases over the period from three months prior to the bid month to the end of the outcome month. Over the whole period from three months prior to the bid through to 24 months following abandonment, targets that remained independent (Category 1) obtained large, significantly positive abnormal returns averaging 31%. No significant reduction in the bid-related wealth change was identified for this group. Indeed, in the 24 months following bid abandonment, a small positive (but insignificant) total abnormal return was identified. This result was consistent with that reported by Firth (1980). The above result is also consistent with Hypothesis 1, that there is no significant loss of bid premium for targets that remained independent following the bid's abandonment. It therefore appears that the motive for some acquisitions, at least, may include new information rather than the potential for synergistic gains alone.

The results of analysis of variance tests, also reported in Table 2, revealed that abnormal returns for those target companies remaining independent (Category 1), were not significantly different than for those that were subsequently acquired. This result held whether the targets that were subsequently acquired were treated as one single group (Category 4) or further sub-divided into Categories 2 and 3 based on the timing of their subsequent

acquisition. The results are therefore also consistent with Hypothesis 2, and thus provide further evidence to support the view that one motive for takeover bids is new information about the target.

Targets that remained independent for two years following bid abandonment, but which were then acquired subsequently (Category 3), experienced a reduction in bid-related wealth gains in the 24 months following bid abandonment. Over the whole period of analysis, i.e., month -3 to month +24, the abnormal returns to targets in that category were not significantly different from zero. One possible explanation for this result is that the initial bids for these companies were motivated by potential operating synergies but that the subsequent negative abnormal returns reflected market reaction to the non-appearance of any subsequent bids. However, acceptance of this explanation implies inefficient competition in the market for corporate control. An alternative explanation is that the initial bid reflected new information relating to profitable investment opportunities within the target itself. The subsequent share price performance may then reflect failure of the existing management to exploit these opportunities. It is also possible that a causal factor exists for this particular group of targets in that the subsequent bid in years three to five may only occur because the earlier share price performance has been so poor, and that without the price fall no subsequent bids would have been made.

As identified earlier, the new information hypothesis encompasses at least two variants. The

Table 3
Returns to UK Target Companies (1977–1986) Remaining Independent Following Abandonment of Bid (Category 1 Targets)*

	<i>Rel. small</i>	<i>Rel. large</i>	<i>F-statistic</i>
Size (£m)	2.47 (0.45)	158.9 (48.3)	F = 10.84 ^a p = 0.002
TAR (%) month + 1 to month + 24	1.50 (12.6)	7.68 (9.9)	F = 0.15 p = 0.71
TAR (%) month – 3 to month + 24	36.8 ^a (11.6)	25.4 ^b (12.0)	F = 0.47 p = 0.50
Observations	32	31	

^aindicates significant at 1% level

^bindicates significant at 5% level

*Reclassified on the basis of size relative to that of the median for all Category 1 targets. Figures in parentheses represent standard errors.

first implies that certain sectors of the market are undervalued and that it is the bidder's recognition of this undervaluation which acts as the stimulus to the bid. In order to test this variant of the hypothesis, firm size was adopted in the study as an initial proxy for lack of knowledge about the target. A regression of the TAR against the logarithmic transformation of size for targets that remained independent (Category 1) produced the result described in Equation 5 below.

$$TAR = 0.609 - 0.0945 \text{ Log}_e \text{Size}(3.78)(-2.00)^b$$

$$\bar{R}^2 = 5.6\% \quad (5)$$

^aindicates significant at 1% level

^bindicates significant at 5% level

Figures in parentheses represent t-statistics

The t-statistics in Equation 5 indicate that there is a significant, negative relationship between firm size and abnormal returns.¹¹ In order to explore this relationship further, the sample of targets retaining their independence (Category 1) were sub-divided into two further groups according to whether their size was below or above the median size for the sub-sample of Category 1 targets. Mean returns were then calculated for each sub-group and tests conducted for a difference in mean total abnormal returns with the results summarised in Table 3. Despite a significant difference in the mean size of the two sub-groups (F = 10.84), no significant difference in the pattern of abnormal returns was observed either over the 24-month

post-bid period or over the whole analysis period from month – 3 to month + 24. Both sub-groups obtained significantly positive TARs over the full analysis period. It was therefore not possible to reject Hypothesis 3. If size is taken as a proxy for the amount of prior knowledge about the targets, the results do not support the hypothesis that retention of the bid premium was related to any prior undervaluation based on insufficient information.

It is possible that the absence of a significant relationship reflects an inappropriate use of firm size as a proxy for the level of information available. An alternative measure was therefore used which attempted to quantify the change in the level of disclosure of information for surviving targets. Reference was made to the *Times* Index to identify the number of newspaper citations relating to each target in the sub-sample for the two years prior to the bid announcement (or rumour of the bid, if earlier), the period surrounding the bid and the two years thereafter.

Examination of the newspaper citations revealed a significant increase in the volume of information disclosed about the target, particularly in the period surrounding the bid. However, subsequent tests were unable to identify any significant relationship between the change in the level of disclosure and TARs for target companies in Category 1. Although it remains possible that the absence of a significant relationship was due to the crude measures of information disclosure adopted in the study, the results do add support to the view that the bid was not motivated by the identification of undervalued companies.

In order to test the second variant of the new information hypothesis, the sample of surviving

¹¹The value of the adjusted coefficient of determination is low, indicating that size by itself is of relatively low power in explaining the magnitude of TARs.

Table 4
Operating Performance for Target Companies Remaining Independent Following Abandonment of the Bid (Category 1)*

<i>Year</i>	<i>Return on shareholders' funds (%)</i>	<i>Return on capital employed (%)</i>
-2	-1.04	-1.25
-1	-2.41	-1.96
Bid year	-2.92	-3.35
+1	0.96	-0.74
+2	1.27	1.29
RIPM	2.84 (2.70)	1.88 (1.50)

*Average return on shareholders' funds and return on capital employed are identified over the five years surrounding the bid, relative to industry average returns. The relative improvement/deterioration measure (RIPM) represents the change in the average relative return from the two years prior to the bid to the two years subsequent to the bid.

target companies (Category 1) were grouped according to whether there was a relative improvement or deterioration in the accounting measures of performance (RIPM) described earlier. Table 4 describes both mean values of industry-relative rates of return and RIPM for Category 1 targets. Examination of the information provided in Table 4 reveals that the operating performance of these target companies was, on average, inferior to that of the relevant industry average in each of the two years prior to the bid and further deteriorated in the year of the bid itself. This finding is consistent with that reported by Singh (1975), who identified a short-term deterioration in pre-bid profitability for companies acquired in the period 1967-1970. Hughes (1989), however, concludes that 'there is not a systematic tendency for the acquired company to be less profitable than the average company' (p. 66). It is possible, therefore, that the financial performance of targets which successfully defend takeover bids is not typical of targets generally. Support for this view is provided in an analysis, by Pickering (1983), of targets that successfully defended takeover bids. Pickering concluded that 'short-term weakness in what is essentially a strong company can make them very vulnerable [to takeover]' (p. 279).

The information provided in Table 4 also shows that operating performance improved over the two years following the bid year. The average return on both shareholders' funds and capital employed was higher than industry averages by the end of the second year following the bid year.

Examination of the summary TARs of surviving targets, provided in Table 5, revealed that only those companies with a relative improvement in performance retained the initial bid premium. Targets reporting a relative deterioration in accounting-based performance experienced negative TARs in the 24 months following bid abandonment. In contrast, those targets with RIPMs greater than the median value earned significantly positive TARs over the same period. A similar outcome was obtained whether RIPM was measured using return on shareholders' funds, as reported in Table 5(a), or return on capital employed, as in Table 5(b). Average TARs were 33.31% higher for those targets demonstrating improved operating performance using the former measure and 39.39% higher using the latter measure.

When TARs were calculated over the full period from three months prior to the bid through to 24 months following the outcome, then the pattern becomes even more pronounced. Surviving targets with negative RIPMs have TARs that are not significantly different from zero. Targets with greater than average RIPMs earn significantly positive TARs of 52.4%, when RIPM was measured using return on shareholders' funds, and 52.58% when measured using return on capital employed. The test of difference in mean returns between the two groups is statistically significant whichever measure of RIPM was adopted. The results are therefore inconsistent with Hypothesis 4 and provide support for the second of the two variants of the new information hypothesis. Some takeover bids, at least, appear to be motivated by the identification of targets that were underperforming relative to their potential at the time of the bid.

Summary and conclusions

The current study has examined the possible source of bid premia in UK acquisitions through an analysis of returns to targets in abandoned bids. Analysis of returns to target shareholders following bid abandonment revealed that, contrary to evidence available from US studies, the wealth increase obtained by these shareholders did not disappear even when further bids failed to materialise. The evidence provided in the study suggests that some bids reveal new information about the target, which can lead to a permanent revaluation. However, analysis of the relationship between target TAR and size suggests that the premium was not based on an undervaluation of the target in its current state, reflecting lack of market interest. Rather, the results are consistent with those reported by Parkinson (1989), who found that targets in abandoned bids showed a significant

improvement in accounting measures of return on capital employed and earnings per share.

Analysis of operating performance of those companies that survived takeover bids initiated during the period 1977–1986 reveal that these companies were vulnerable to bids. Many of these targets were earning lower rates of return than the average for their industry, both prior to, and in the year of, the bid. Following bid abandonment, however, surviving targets on average improved performance to a level above that of the relevant industry average. For this sample of companies, at least, it appears that the takeover mechanism has acted as a spur to improve operating performance.

This interpretation is consistent with the view expressed by Pickering (1983) that 'the problems that a number had faced immediately prior to the merger, together with the sense of crisis at the receipt of an unwanted takeover bid had created a favourable opportunity for internal change to strengthen the company' (p. 275). Analysis of the

pattern of security returns reveals that the stock market rewards the shareholders of those companies which demonstrate the ability to improve operating performance. However, those surviving target companies that produce no improvement in operating performance subsequent to the bid suffer the loss of their previous wealth gains.

Although it is possible that this loss may reflect appropriation of wealth (revaluation) gains by target management, it is unlikely that all such gains could be appropriated in this way given the size of the average bid premium. There is therefore little evidence to support the view that takeovers are aimed at a neglected company sector which is consequently undervalued. The results of the above analysis does, however, provide support for the hypothesis that one of the motives for takeover bids is the acquisition of previously under-utilised resources and that the market for management control does, in this instance at least, act as an agent to improve corporate efficiency.

Table 5
Total Abnormal Returns (TAR) to UK Targets Remaining Independent Following Abandonment of the Bid (Category 1)

(a) RIPM measured by return on shareholders' funds

<i>Category</i>	<i>N</i>	<i>TAR</i> <i>month +1 to</i> <i>month +24</i> <i>(%)</i>	<i>TAR</i> <i>month -3 to</i> <i>month +24</i> <i>(%)</i>
Relative deterioration in performance	21	-2.58 (11.9)	11.30 (10.6)
Relative improvement in performance	22	30.73 ^b (11.3)	52.4 ^a (15.0)
F statistic		4.12 ^b	4.91 ^a
Probability		0.05	0.01

(b) RIPM measured by return on capital employed

<i>Category</i>	<i>N</i>	<i>TAR</i> <i>month +1 to</i> <i>month +24</i> <i>(%)</i>	<i>TAR</i> <i>month -3 to</i> <i>month +24</i> <i>(%)</i>
Relative deterioration in performance	19	-7.71 (12.9)	6.74 (10.7)
Relative improvement in performance	28	31.58 ^a (10.2)	52.58 ^a (14.0)
F statistic		5.82 ^b	6.19 ^b
Probability		0.02	0.02

^aindicates significant at 1% level

^bindicates significant at 5% level

*TARs are shown separately for those which identified a relative improvement or deterioration in performance (measured by RIPM). Month 0 represents the month in which the bid was formally announced. Figures in parentheses represent standard errors.

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Economic Effects of Accounting Regulation for Public Accountants: Evidence from the Netherlands

Steven J. Maijoor*

Abstract—This paper provides empirical evidence on the size of the audit market and the number of public accountants supplying services in an attempt to understand the effects of accounting regulation for public accountants. Intuitively, the size of the market for public accounting services would be expected to increase because of accounting regulation and have beneficial effects for public accountants. However, the actual effects of accounting regulation depend on the level of voluntary disclosure before the regulation, the degree of compliance with the regulation by firms and the number of public accountants supplying services. The size effects of two changes in Dutch accounting regulation, one in 1970 and one in 1983, are analysed empirically. The indicators of the size of the market for public accounting services used suggest an increase in the size of the audit market. The results for the supply side suggest that the total number of employed public accountants adjusted to this increase. However, the total number of partners did not adjust to the increased size of the market. Two alternative explanations for the different findings for employed public accountants and partners are provided and discussed.

Introduction

Most empirical studies on the economic effects of accounting regulation focus on capital suppliers and/or managers (see, for example, Chow, 1983). Effects for other groups, such as public accountants, are hardly ever examined. This paper provides exploratory empirical evidence on the economic effects of Dutch accounting regulation, prescribing both mandatory audits and more detailed disclosure rules, for registered accountants practising in public accounting (RAs).¹

Empirical evidence on the economic consequences of accounting regulation has been advocated as an input to accounting policy making and is actually used for accounting policy making. However, the implications of documented economic consequences for accounting policy

making and the desirability of accounting regulation are not clear.

In general, arguments for mandatory audit requirements are based on the idea that an unregulated market is characterised by externalities and information asymmetry (e.g., Beaver, 1989, pp. 176-197). As a result of externalities, the amount of audited accounting information would be under- or overproduced in an unregulated environment. A well-known externality is the public good problem, which would result in the underproduction of audited accounting information. With respect to information asymmetry, it is in general argued that managers have incentives not to disclose unfavourable information. As a result, investors cannot assess quality differences between securities offered at the capital market. This might lead to adverse selection, i.e. only poor quality securities are supplied at the capital market. Finally, uneven possession of accounting information can be judged undesirable on the basis of equity or fairness considerations.

The enforcement of detailed disclosure rules can be supported on the basis of the economics of standardisation (see Sunder, 1988; Easterbrook and Fischel, 1984). This perspective assumes that the provision of accounting information requires substantial information costs and/or (re)negotiation costs that must be incurred by managers and capital suppliers. Detailed disclosure rules may save on these costs by standardising accounting practice.

Arguments against regulation assume that private consumption of accounting information is possible and that there are sufficient incentives for

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¹Registered accountants are not necessarily active in public accounting. However, for practical reasons, the abbreviation RA will stand in this paper for registered accountant in public accounting.

firms to disclose and audit accounting information. These incentives might exist as a result of competitive capital markets and the existence of agency costs.

Assessing the effects of accounting regulation in terms of efficiency and social costs and benefits is very difficult. Empirical evidence of the actual existence and seriousness of market failures is not available and difficult to provide. Because of well-known technical and conceptual problems, cost-benefit analyses of regulated and unregulated accounting information markets do not seem to be a promising area of research (Sunder, 1988, p. 34).

The accounting policy-making perspective applied in this paper is that the role of economic research is restricted to providing evidence of specific consequences of accounting regulation (see, for example, Dopuch, 1989; Mishan 1981, p. 263). This evidence can help accounting policy makers, and other interested parties, evaluate accounting regulation and make more informed decisions. Judging the social desirability of documented economic effects of accounting regulation is outside the scope of this study.

Framework and previous research

Regulation requiring firms to disclose audited accounting information substantially affects the structure of the market for public accounting services (see Benston, 1985). It is frequently claimed that public accountants, suppliers in the market for public accounting, benefit from the effects of this demand regulation on the market structure (see Dopuch, 1989; Puro, 1984). However, accounting regulation will only have beneficial effects for public accountants when two conditions are met. First, the regulation should actually increase the size of the audit market. Second, if the size of the audit market increases, the beneficial effects should not be competed away as a result of an increased number of accountants supplying services to the market. As will be discussed below, it is not clear whether both conditions hold and relevant empirical evidence is not readily available.

With respect to the first condition, any new level of regulation must exceed the level of voluntary disclosure and auditing before the enforcement of the regulation. Some argue that the information required by regulation is already available within firms and accounting regulation can be considered as a standardisation of existing accounting practice (Easterbrook and Fischel, 1984; Bromwich, 1985, p. 66).

The effects of regulation might also be limited because firms avoid the regulation, or do not comply with it. For example, there is empirical evidence that after the Dutch 1970 regulation,

about 90% of all public companies² changed to the private company form and avoided the regulation (see Slagter, 1983). After the Dutch 1983 regulation, which mainly affected the private company form, a change of organisational form was less attractive because in most cases that would result in paying higher taxes³, and in giving up limited liability for managers and capital suppliers. However, there is evidence that a large number of companies simply did not comply with the regulation. Poorthuis (1990) estimates that up to 45% of the private companies subjected to the regulation did not disclose annual accounts with respect to the fiscal year 1984.

On the second condition, Benston (1985) argues that public accountants only receive short-term, and not long-term benefits, from an increased demand for their services. He assumes that there will be an adjustment of the number of public accountants on the supply side and that excess profits are competed away. However, others argue that occupational licensing establishes an entry barrier to the public accounting sector and prevents such an adjustment. Licensing makes entry more costly and decreases the number of people in the sector (Young, 1986). As a result, restrictions on entry will have beneficial economic effects for public accountants and will raise salaries above competitive levels (Pichler, 1974).

There are very few empirical tests of both the first and second conditions. Research on the activities of public accountants in the political process can be viewed as indirect tests of these conditions. Preferences of public accountants for specific regulations can be expected to depend on their economic effects for public accountants (see Watts and Zimmerman, 1986, p. 329; Young, 1991). There are only two empirical studies documenting the effects of licensing on the flow of new entrants into the market for public accounting services (i.e. Pichler, 1974; Young, 1988). Both studies are conducted in the US environment.

This paper expands the limited body of empirical evidence on both conditions. It is organised as follows. The next section discusses the two Dutch regulations and derives hypotheses concerning their anticipated effects on the market for public accounting services. Section three presents empirical results for condition one: the effects of the regulations on the size of the market for public accounting services. Section four presents the

²Note that the term 'public company', used in this paper, refers to a public limited liability company (*naamloze vennootschap* or *NV*), and 'private company' refers to a private limited liability company (*besloten vennootschap* or *BV*).

³The 1983 regulation could be avoided by switching to a partnership form. Partnerships are not subjected to the corporate tax system but to the income tax system (Slagter, 1983, p. 150). The corporate tax rate is proportional and is lower than the highest rate of the progressive income tax system.

results for condition two: the number of RAs supplying services. Finally, section five discusses the conclusions and limitations of the study.

Expected effects of Dutch accounting regulation on the market for public accounting services

In the Netherlands, until recently, the right to audit the annual accounts of firms was restricted by law to registered accountants. They are organised in the Dutch Institute of Registered Accountants (*Nederlands Instituut van Registeraccountants* or *NIVRA*) which was established in 1967. The standards of entrance to the profession are considered to be very high (see Nobes and Parker, 1991).

The effects on RAs of the following two material changes in Dutch accounting legislation⁴ are analysed empirically in this study: (1) the Act on Annual Accounts of Enterprises enforced in 1970 (*Wet op de Jaarrekening van Ondernemingen*) and (2) Title 8 of Book 2 of the Dutch Civil Code enforced in 1983 (*Titel 8, Book 2 BW*). The regulations can be expected to increase the demand for public accounting services because they increased the number of firms subjected to a mandatory audit requirement and both contained more detailed disclosure rules.

Before the Act on Annual Accounts of 1970, Dutch legislation on annual accounts was mainly limited to section 42 of the Code of Commerce. This section only contained prescriptions for the annual accounts of a particular group of public companies, the so-called 'open' public companies. The legislation did not require 'open' public companies to audit their annual accounts. Nearly all 'open' public companies were listed on the Amsterdam stock exchange and audited their annual accounts voluntarily (see Groeneveld, 1965; CBS 1970).

As a result of the 1970 change, a mandatory audit requirement was introduced for all public companies, large private companies and large cooperative societies. The 1983 regulation further enlarged the group of firms subjected to a mandatory audit requirement. Under this new legislation all public companies, private companies and co-operative societies were obliged to disclose annual accounts. All large and medium-sized firms subjected to Title 8 had to audit their annual accounts.⁵ In sum, both regulations should have enlarged the size of the market for public accounting services, measured by the number of audits.

⁴The term 'accounting legislation' refers to the provisions in Dutch company law concerning the financial accounting practice of firms.

⁵There was a temporary provision for middle-sized private companies with respect to the mandatory audit. Until 1990 only large private companies were required to audit their annual accounts.

A second reason for expecting the regulations to affect the size of the public accounting market is that they both increased the level of detail of annual accounts. The original prescriptions in section 42 were not extensive. They only required 'open' public companies to disclose 10 separate items on the asset side of the balance sheet. As a result of the 1970 regulation, annual accounts' disclosure requirements were intensified (Burgert and Timmermans, 1987, p. 20). The 1970 Act contained additional prescriptions for both sides of the balance sheet, the profit and loss account and the explanatory notes.

In 1983, Title 8 also significantly increased the requirements for the level of detail of annual accounts. The new legislation was more detailed in: the presentation and layout of the balance sheet and profit and loss account; the information conveyed in the notes; the measurement rules for profit; and the creation and amortisation of the revaluation reserve (Burgert and Timmermans, 1987, p. 29). In sum, both regulations are expected to increase the extensiveness and complexity of the services per audit. More detailed information requirements result in more work for the auditor (Puro, 1984, p. 267).

The size of the market for public accounting

Preferably, data on the total number of chargeable hours should be used to assess the effects of the regulations on the size of the Dutch market for public accounting services, with respect to the first condition. The term 'chargeable hours' refers to the number of hours actually supplied and demanded in the market. For the Dutch market, data on the total number of chargeable hours are only available for a limited number of accounting firms in the last few years. As an alternative, two other indicators are used. The first is the number of audited annual accounts disclosed. This measure does not take into account changes in the average number of chargeable hours per audit, or allow for the fact that RAs might supply public accounting services to firms that do not disclose audited annual accounts.

The second indicator of the size of the auditing market is the number of professional employees in the public accounting sector. The market for public accounting is labour intensive. Therefore changes in the quantity of chargeable hours traded on the market for public accounting should be reflected in the number of employees in the public accounting sector.⁶ The two main limitations of the professional employees measure are: changes

⁶In a recent study by Meuwissen (1992) of the Dutch public accounting market, correlations are reported between the number of accountants and audit firm revenue (including or excluding non-public accounting revenue). All reported correlations are higher than 0.97.

in auditing technology also affect the number of employees; and, the number of hours supplied will differ between employees and per employee over time.

Results: Number of Disclosed Audited Annual Accounts

To get an estimate of the number of disclosed and voluntarily audited annual accounts by public companies before the passing of the 1970 Act, the number of companies listed on the Amsterdam stock exchange is used. Public companies not subjected to section 42 of the Code of Commerce disclosed no annual accounts (Tempelaar, 1966). There are various studies on the number of audited annual accounts disclosed by listed companies before the passing of the Act. The study by Groeneveld (1965) was the last one before the passing of the Act. According to this study, of a group of 402 publicly listed companies, 340 (85%) audited their annual accounts voluntarily. Studies on disclosure in earlier years, which go back to 1926, report lower percentages (see Buijink, 1990). In general it can be stated that over time a larger share of the publicly listed companies audited their annual accounts.

The number of listed public companies in 1970 (692) will be taken as an estimate of the maximum number of audited annual accounts disclosed by public companies before the passing of the Act in 1971 (see Table 1). No annual accounts were disclosed by private companies before the 1970 regulation because the private company form was introduced in Dutch law in 1971. There are no data on the number of disclosed audited annual accounts from co-operative societies before the passing of the Act. It is assumed that the passing of the Act did not reduce the number for co-operative societies. The estimated maximum number of audited annual accounts disclosed by firms in 1971 is 1,573.

The 1970 Act on Annual Accounts was enforced step by step. Large co-operative societies and public companies had to disclose and audit their annual accounts over the fiscal year 1971. Private companies subjected to the Act had to audit and disclose annual accounts over the fiscal year 1973. Thus, the last increase in the number of disclosed audited annual accounts due to the new legislation can be expected in 1974 (assuming that annual accounts for the fiscal year 1973 are disclosed in 1974).

Data on the number of disclosed annual accounts in the period after the 1970 regulation are published by the Dutch Chambers of Commerce. The total number of disclosed annual accounts was 4,094 for 1974. Therefore the estimated growth in the total number of disclosed audited annual accounts in the period 1971 to 1974 is 160%. However, so far it is assumed that all disclosed

Table 1

Number of annual accounts disclosed by public companies (NVs), private companies (BVs) and co-operative societies (Co-ops) before and after the passing of the Act on Annual Accounts of 1970

	NV	BV	Co-op	Total
1971	692	n.r.	881	1,573
1974	2,539	674	881	4,094

n.r. = not relevant

Sources: CBS, *Winststatistiek van Naamloze Vennootschappen en overige Rechtspersoonlijkheid Bezittende Ondernemingen 1970* (1976, p. 19); Kamers van Koophandel en Fabrieken in Nederland, *Statistische Gegevens 1974* (1974).

annual accounts are audited. A study in 1977 (Limperg Instituut, 1980) on a sample of disclosed annual accounts by companies indicates that 22% had no auditor's opinion. If the 1974 observations for the number of public and private companies that disclosed accounts are corrected on the assumption that 22% of these were not audited, the growth in the number of audited annual accounts is 115%.

The real growth of the number of audited annual accounts can be expected to be higher than 115% for three reasons. First, the number of co-operative societies disclosing audited annual accounts voluntarily before 1971 is probably much lower than the number of co-operative societies disclosing under the Act (see Metzemaekers and Maastricht, 1983, pp. 226–227). Second, not all private companies that were obliged to audit their annual accounts were also required to disclose their annual accounts. Third, only the data for the number of annual accounts disclosed in 1974 has been corrected for non-audited disclosed annual accounts. The 1971 observations probably also contain some non-audited annual accounts.

During the period 1974–1984, with no material change in Dutch accounting legislation, the average total number of audited annual accounts disclosed per year was 4,130.⁷ Over the whole period, the total number of disclosed audited annual accounts decreased by 13% from 4,094 in 1974 to 3,575 in 1984.

To measure the effect of Title 8, only the number of employees in the public accounting sector will be used. The reason is that there are problems in getting data on the number of firms disclosing audited annual accounts after the passing of Title 8. The data on disclosed annual accounts of the Chambers of Commerce cannot be used after the

⁷Source: Kamers van Koophandel en Fabrieken in Nederland, *Statistische Gegevens 1974 ... 1984* (1974–1984).

passing of Title 8, because the connection between disclosing and auditing was abolished. Before Title 8, firms that were required to disclose were also required to audit. After the passing of Title 8, not all disclosing firms were also required to audit.

Results: Number of Employees in the Public Accounting Sector

Two main groups of professional employees can be distinguished in the Dutch public accounting sector: RAs and assistant-accountants in public accounting. RAs are employed by an accounting firm or are partners in an accounting firm. Assistant-accountants are usually studying on a part-time basis to become RAs. Two alternative educational programmes are available for a person wanting to enter the register of NivRA: the accountancy programme conducted by NivRA and the accountancy programme conducted by Dutch universities. All NivRA students are part-time students. Students in the first half of the university programmes are full-time students and in the second half part-time students.

The sum of NivRA students and RAs associated with a public accounting firm will be used to reveal changes in the size of the market for public accounting. The main limitations of this variable as a measure of the number of professional employees in public accounting are that not all RAs associated with a public accounting firm are involved in auditing activities; not all assistant-accountants are registered as NivRA students (e.g. university students⁸); and not all NivRA students are working for an accounting firm.

In defence of the measure it is frequently suggested that the number of NivRA students is highly dependent on the recruitment policy of accounting firms (see NivRA's *NivRA-opleiding en examen '84/'85*, 1985). Also, NivRA students are the group which can be expected to be the most sensitive in the short run to changes in the size of the market, because they can be recruited from a very large group of potential candidates, namely high school graduates. As a result, the number of NivRA students employed can adjust quickly to changes in the demand for public accounting. The supply of part-time university students and RAs can be expected to be relatively fixed in the short term. The reason is that these employee categories require specific accounting study for about four to eight years.

Data on the number of NivRA students and of RAs associated with a public accounting firm were collected for the period 1968–89. These data were

analysed by first calculating the annual changes in the total number of NivRA students plus RAs. Because one observation is lacking for NivRA students, the number of annual changes is 20. Then the annual changes were grouped into annual changes for 'regulatory years' and 'non-regulatory years'. Years in which a change in the size of the market for public accounting can be expected because of changing accounting legislation were classified as 'regulatory' years, other years were classified as 'non-regulatory'. Because it is difficult to predict the exact year in which the number of employees will be affected, this identification procedure is somewhat arbitrary. Therefore, four variant groupings of 'regulatory' and 'non-regulatory' years were made (see Table 2, variants A, B, C, and D). For the four variants, the number of 'regulatory' years varies between two and five.

The annual changes would be expected to be larger in 'regulatory years' than in 'non-regulatory years'. To check this, a permutation test (or randomisation test) was applied to test for significant differences from the mean. As a test of a significant difference between the means of two independent samples when the sample sizes are small, the permutation test is a powerful non-parametric test (Siegel and Castellan, 1988, p. 151). The results are presented in Table 2. In the first column, the four variants (i.e. A, B, C, and D) of the group of 'regulatory years' are listed. The second column shows the average annual change in regulatory years and the average annual change in non-regulatory years for students and RAs together. The third and fourth column show the average annual change in regulatory years and the average annual change in non-regulatory years separately for the two groups.

The results for students and RAs together show that for all four variants the mean in the 'regulatory years' is larger than in 'non-regulatory' years. For two variants (A and B) the difference is significant at a 5% level, for one variant (C) at a 10% level. These results strongly support the hypothesis that in regulatory years the market for public accounting services grows significantly faster than in non-regulatory years.

If the results are separated for NivRA students and RAs, it appears that the significant increase in the total number of employees during 'regulatory years' can be attributed to the group of students. The results for students, presented in the third column, are comparable to the results for the whole group of employees. The results for RAs are not in line with the general results. For three combinations of regulatory years, the mean change is even lower during 'regulatory years'. The notable difference between the results for students and RAs could be expected, considering the difference between the opportunities to hire new employees, in these two categories. As stated earlier, there is

⁸The number of university students in public accounting is relatively small compared with the number of NivRA students. The education of NivRA students is strongly geared towards public accounting, while university students receive a more broad-based business education.

Table 2

Results of permutation test for analysis of effects of Dutch accounting legislation on the number of professional employees (NIVRA students + RAs) in public accounting in the period 1968–1989

Regulatory years	All			Students			RAs		
	RAV	NONRAV	One-tailed p	RAV	NONRAV	One-tailed p	RAV	NONRAV	One-tailed p
(A) 71	561	102.5	0.021**	509	39.4	0.016**	52	61.5	0.595
84									
(B) 71	423.3	79.6	0.022**	358.5	18.4	0.021**	64.8	59.6	0.344
72									
84									
85									
(C) 71	329.6	87.9	0.066*	269.2	25.5	0.061*	60.4	60.6	0.452
72									
73									
84									
85									
(D) 70	283.8	114.5	0.166	237	48.8	0.139	46.8	63.8	0.802
71									
83									
84									

RAV = average annual change in regulatory years, number of observations = 2 ... 5; NONRAV = average annual change in non-regulatory years, number of observations = 15 ... 19; * = significant at a 10% level; ** = significant at a 5% level. Because one observation for the students is lacking, the NONRAV of the 2nd column is not equal to the sum of the NONRAV of the 3rd column and the NONRAV of the 4th column.

Sources for the data in Tables 2 to 5 are: NIVA, *NIVA Jaarverslag '55/'56 ... '66/'67* (1956–1967); J. W. de Koning, '70 Jaren Instituut in Cijfers', *De Accountant*, December, 1964, pp. 290–303; NIVRA, *NIVRA Jaarverslag '67/'68 ... '72/'73* (1968–1973); NIVRA, *De Accountant*, April, 1973; NIVRA, *Verslag van de Werkzaamheden '73/'74 ... '88/'89* (1974–1989); NIVRA, *NIVRA Jaarverslag Onderwijsbureau en Examenbureau '77/'78 ... '78/'79* (1978–1979); NIVRA, *NIVRA-Opleiding en Examen '79/'80 ... '88/'89* (1980–1989); NIVRA, *NIVRA Gids '68, '70 ... '75, '78, '80, '82, '84, '86, '88, '90* (1968, 1970 to 1975, 1978, 1980, 1982, 1984, 1986, 1988, 1990).

always a large pool of potential NIVRA students available while a long period of study is required to become RA.

The supply side of the public accounting market

This section presents the empirical results for the second condition: whether there is an adjustment of the number of suppliers to the growth of the market documented in the previous section. As stated in section one, the economic effects of accounting legislation for public accountants depend not only on changes in the number of hours 'traded' in the market, but also on the number of suppliers on the market. This section will analyse whether beneficial economic effects for suppliers are dissipated in the long run.

To analyse the supply side, each individual RA will be considered to be a supplier in the market for public accounting. Although public accounting services are frequently performed by firms and not individuals, there are four main reasons for choosing the individual RA, and not the audit firm as the unit of analysis. First, because auditing is labour

intensive, an increase in the number of RAs can be expected if there is an increase in demand and no barrier to entry. There is no reason why greater demand for public accounting should result in an increase in the number of accounting firms. The complete increase in demand might be serviced by a growth of existing firms and consequently there is no increase in the number of firms. The number and size of accounting firms can be expected to be related to economies of scale in the production of public accounting services (see Eichenseher and Danos, 1981).

Second, occupational licensing regulates the number of individual accountants, not the number of accounting firms. Third, from an accounting policy making perspective, there is an interest in economic effects for individuals or groups of individuals. An analysis at the level of the public accounting firm would not provide evidence of such effects. For example, the economic effects of accounting regulation might differ within the firm for RA employees and partners. Therefore the results of this study will be reported separately for RAs who are employed by an accounting firm and RAs who are partners. Finally, studies on the

Table 3

Results of Mann-Whitney test for comparison of annual changes in the numbers of suppliers (RAs) in the market for public accounting for non-regulated and regulated periods (1946-1970 and 1971-1989)

	1946-1970		1971-1989		Two-tailed p
	NONRAV	st.dev	RAV	st.dev	
RA employee	16.88	17.97	45.56	36.76	0.0014***
RA partner	21.80	19.31	17.83	13.10	0.7960
Total	38.68	13.45	63.39	38.09	0.0181**

NONRAV = average annual change in non-regulatory years, number of observations = 25; RAV = average annual change in regulatory years, number of observations = 18; st.dev = standard deviation; ** = significant at a 5% level; *** = significant at a 1% level. Data sources: see Table 2.

adjustment of the supply side to changes in demand, both in public accounting markets and other professional markets, typically use individuals as the unit of analysis (see Young, 1988; Pashigian, 1977).

The number of suppliers can only be expected to adjust to an increase in the market for public accounting in the long term and gradually, because the period of study required to become a RA is long. Because the RA numbers cannot adjust in the short term intervals around the enforcement of the regulations, the two accounting regulations had inevitable beneficial short-term effects for RAs. These short-term benefits are confirmed by data that are available on the income growth of partners in public accounting. Reliable income data are only available for the years 1961, 1966 and 1972.⁹ The data make it possible to construct income growth figures for the two periods 1961-66 and 1966-72. The latter period includes the 1970 legislation and the first year that all public companies and large co-operative societies were subjected to the requirement to disclose and audit their annual accounts. To evaluate the income growth figures of RAs, the income growth figures of other professionals, such as lawyers and physicians, can be used as a benchmark.¹⁰ In the first period, other professionals had an income growth of 79%, while RA partners only had an income growth of 50%. However, in the second period RA partners were very close to the average income growth of other professionals (RA partners 83% and other professionals 84%).

If the supply side adjusts gradually and in the long term, the type of analysis used in the previous

section cannot be applied. It is not possible to use short-term intervals around the passing of the legislation changes to detect such a long-term adjustment. Instead, if there is an adjustment, the average growth of RAs over long-term intervals after the passing of the 1970 and 1983 legislation will increase. Therefore, in the analysis below it will be assumed that, if there is an adjustment, the average growth of the number of RAs in the long-term interval 1971-1989 will be higher.

To obtain benchmarks for the growth in the number of employed RAs and partners in non-regulatory years, the time series data for NivRA for 1968-1989 were extended by adding data for NivA (*Nederlands Instituut van Accountants*) for the period 1946-1967. NivA was the biggest professional organisation of accountants before the foundation of NivRA. Its members accounted for 81% of the new entries in the NivRA register. For comparison purposes the NivA data were adjusted by a fixed percentage of 23.13%.

Table 3 presents the average annual changes in the number of RA employees and partners for the period that higher growth rates can be expected if there is an adjustment (the 1971-1989 'regulatory period'), and for the period before the regulations (the 1946-1970 'non-regulatory period'). The average annual change of the total number of public accountants is higher in the regulatory period than in the non-regulatory period (63.39 vs. 38.68). A Mann-Whitney test was applied to test for significant differences from the mean. For large samples, the Mann-Whitney test is a good approximation to the permutation test (Siegel and Castellan, 1988, p. 155). The test indicates that the average annual change in the total number of public accountants is significantly higher in the regulatory period (two-tailed $p = 0.0181$). However, there are considerable differences between RA employees and RA partners. The average annual change for RA employees in the period 1971-1989, at 45.56, is significantly higher

⁹Source: FOIB, *Rapport Statistisch Onderzoek Intellectuelen 1961* (1964); FOIB, *Rapport Statistisch Onderzoek Intellectuelen 1966* (1968); CBS, *Inkomens Vrije Beroepsbeoefenaren 1972, een Methodologische Studie* (1981).

¹⁰Source: CBS, *Inkomens Vrije Beroepsbeoefenaren 1972, een Methodologische Studie* (1981).

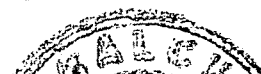


Table 4

Results of Mann-Whitney test for comparison of annual changes in the number of suppliers (RAs) in the market for public accounting for two periods within the non-regulatory period (1946–1957 and 1958–1970)

	1946–1957		1958–1970		Two-tailed <i>p</i>
	NONRAV	st.dv	NONRAV	st.dv	
RA employee	18.67	14.83	15.23	20.93	0.8704
RA partner	13.91	14.58	29.07	20.72	0.0387**
Total	32.58	13.16	44.30	11.42	0.0338**

NONRAV = average annual change in non-regulatory years, number of observations is 12 (1946–1957), and 13 (1958–1970); st.dv = standard deviation; ** = significant at a 5% level. Data sources: see Table 2.

than the average of 16.88 for the first period (two-tailed $p = 0.0014$). The average annual change for RA partners in the period 1971–1989 is 17.83, lower than the average of 21.80 for the first period. The decrease is not significant (two-tailed $p = 0.7960$).

To check for trends in the annual changes in the number of suppliers in non-regulatory years, the supply data within the first period was analysed. Table 4 presents the average annual changes in the total number of RAs for the periods 1946–1957 and 1958–1970. The table shows that the total number of RAs increases significantly during the non-regulatory period. However, if the results are separated for RA employees and partners, it appears that the significant increase can be attributed to partners. For RA employees there is no significant difference between the means of these two periods.

Inspection of the data for RA partners for the period 1946–1970 shows that the annual changes can be better described as a constant annual percentage than as a constant absolute change. If the annual change for partners in accounting for the period 1946–1970 is expressed in percentages, there is no significant difference between the two periods within the non-regulatory period (two-tailed $p = 0.1573$). The statistical analysis comparing the regulatory 1971–1989 period with the non-regulatory 1946–1970 period was repeated with the annual changes of partners expressed as percentages. The mean change in terms of percentage for the regulatory period is significantly *lower* compared with the non-regulatory period (two-tailed $p = 0.0342$).

The results of the empirical analysis suggest that the licensing of RAs does not function as an entry barrier and that there was an accelerated increase in the number of employed RAs in the regulatory period. However, the results for partners differ significantly from the results for employed RAs. If the annual changes for partners are expressed in percentages, the observations for the regulatory period are significantly lower compared with the

non-regulatory period.¹¹ Two explanations for the different findings for RA employees and partners will be discussed below.

An Entry Barrier to Partner Positions

The first explanation for the different findings for partners and employed accountants assumes that within the RA group there is a conflict of interest between employed accountants and partners. Partners need sufficient employed RAs to do the increased amount of work as a result of regulation. Hence, partners would like to avoid an entry barrier to the profession. However, employed accountants' salaries will increase if the number of RAs is restricted and they would like to have an entry barrier to the profession (Benston, 1985). This explanation also assumes that partners have a mechanism to settle this conflict of interest to their advantage. An example of such a mechanism would be the corporate organisation NivRA, which has a strong influence on the supply side of the market for public accounting services. Partners would be expected to have a stronger influence on the activities and policies of NivRA than the group of employed RAs.

An entry barrier to partner positions seems to be inconsistent with the fact that every RA can become a partner by starting his or her own accounting firm. Table 5 presents the annual changes for co-operating partners and for independent partners for the unregulated and the regulated period. The difference between these two groups of partners is remarkable. While there was a significant decrease in the number of co-operating partners, there was a significant increase in independent partners. This indicates that it is getting more difficult for RAs to enter partner positions in existing accounting firms.

¹¹To exclude the possibility of a lagged adjustment of the number of partners after a very long period, the last five years of the regulatory period were calculated separately. However, the average annual changes in the last five years (9.4) is even lower than the average for all regulatory years (17.83).

Table 5
Results of Mann-Whitney test for comparison of annual changes in the numbers of co-operating and independent partners in non-regulated and regulated periods (1946-1970 and 1971-1989)

	1946-1970		1971-1989		Two-tailed p
	NONRAV	st.dev	RAV	st.dev	
Co-operating partners	23.88	18.56	10.56	18.79	0.0353**
Independent partners	-2.09	16.82	7.28	9.74	0.0094***

NONRAV = average annual change in non-regulatory years, number of observations = 25; RAV = average annual change in regulatory years, number of observations = 18; st.dev = standard deviation; ** = significant at a 5% level; *** = significant at a 1% level. Data sources: see Table 2.

The result that partners, and not employed RAs, benefited from the legislation is in line with Young's findings (1986). He compared the average hourly fees of certified and non-certified US public accountants. He found significantly higher average hourly fees for certified partners, as compared to non-certified partners, whereas certified employed professionals did not have higher rates than their non-certified colleagues.

Changes in the Organisation and Production of Public Accounting Services

The second explanation for the different findings for employees and partners is based on changes in the organisation and production of public accounting services. These changes might have decreased the optimal ratio of partners to employees and decreased the demand for partners. For example, the ratio of partners to employees is in general lower for larger accounting firms compared with smaller accounting firms. In the period studied, the size of the average Dutch public accounting firm increased. Buijink and Maijoor (1993) report for 1970 an average audit firm size of 4.66 RAs and for 1988 an average audit firm size of 5.63 RAs. Hence, the tendency towards larger audit firms might have resulted in decreased demand for partners.

Another factor affecting the demand for partners is technological change. Examples of technological changes that have occurred in the public accounting sector in the past two decades are the use of risk analysis in the audit process, the use of computers in the audit process and the development of structured audit approaches. Through changes in auditing technology, the efficient ratio of partners to other employees in public accounting might have changed. However, *a priori* the direction of the effects of technological change on the ratio partners to employees is not clear. It can be argued that these technological changes decreased the demand for lower skilled labour and decreased the demand for employees. However, it can also be argued that the standard-

isation of auditing reduced the amount of required supervision and reduced the demand for partners. Currently, there is no empirical evidence on how technological changes have affected this ratio and how this might differ between accounting firms of various sizes.

Conclusions and limitations

The results of this paper can be summarised as follows: (1) After the passing of the 1970 and 1983 Dutch accounting legislation, an increase in the size of the market for public accounting services would be expected; (2) The data on the number of disclosed audited annual accounts and the number of employees in the public accounting sector are consistent with this expectation; (3) A comparison of the non-regulatory period with the regulatory period indicates that the number of employed RAs, but not the number of partners, adjusted to the increased size of the market for public accounting.

This empirical evidence supports the hypothesis that there is no entry barrier to the market for public accounting that prohibits an adjustment of the number of public accountants. However, there is no conclusive evidence on the different results for employed accountants and partners. Two explanations for the different findings are discussed. First, although the evidence supports the hypothesis that there is no entry barrier to the profession, this does not exclude the possibility of an entry barrier to partner positions. Second, changes in the organisation and production of public accounting services might have decreased the optimal ratio of partners to employees. However, there is not sufficient empirical evidence to choose between these two explanations.

The results reported in this paper are limited in several ways. Most importantly, a main problem of studies of this kind is that they imply predictions of how the market would have developed without regulation. As a practical solution to this problem,

this study has compared supply and demand data between pre-regulatory and post-regulatory periods. Second, the numbers of disclosed audited annual accounts and of employees in the public accounting sector are imperfect measures of the size of the market for public accounting. Finally, the legislation changes might have affected RAs through mechanisms other than the number of hours supplied and demanded. An increase in the legal liabilities of RAs is a possible negative effect of the legislation which is not considered in this study (see Benston, 1985). Further research, which focuses on the identified limitations, will help in obtaining a more robust understanding of the relationship between accounting regulation and public accountants.

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BOOK REVIEWS

Philosophical Perspectives on Accounting. Essays in Honour of Edward Stamp. M. J. Mumford and K. V. Peasnell (eds.). Routledge, 1993. xxv + 324 pp. £40.

The authors of this collection of essays are academic colleagues, pupils and friends (and, in the case of the final essay, the son) of the late Eddie Stamp. It is appropriate that they should focus on philosophical aspects of accounting because of Stamp's interests in the conceptual framework of financial accounting, the possibility of applying a jurisprudential approach to the development of standard accounting practice, and the status of accounting as a science. All of these issues are addressed in the book.

The preface, by David Tweedie, is really a paper in its own right, surveying current problems of accounting standard-setting and indicating some of Stamp's contributions to the subject. This is followed by Ken Peasnell's introductory chapter, which provides an overview of the varied diet to come, in the remaining nine chapters. Of these, the first two are concerned with aspects of financial standards. Michael Mumford discusses the development of the idea of decision usefulness, and Stamp's particular contribution to this. Alister Mason, in the following chapter, discusses the role of professional judgment in accounting practice, drawing heavily on his study with Gibbins, published by CICA (and reviewed in *Accounting and Business Research*, Winter, 1993).

The following two papers address the conceptual framework, and, in the process, move into a more explicitly philosophical mode (provoking the reviewer to parody Stalin: 'When I hear the word philosophy, I reach for my dictionary'). Michael Power, in an admirably clear paper (notwithstanding the reviewer's need for a dictionary) applies Rawls' model of 'reflective equilibrium' to suggest that 'A conceptual framework is not an ultimate foundation in any classical sense but a point of reference in the network of accounting standards and practices that serves to "organise" thinking about them' (p. 53).

Simon Archer, drawing on the literature of jurisprudence (to which Eddie Stamp also turned in his later work), seems to reach a very similar conclusion, but emphasises that, if a system of financial accounting standards is to carry authority, it is the *process* by which the standards are

derived that must be accepted, rather than a conceptual framework with which they conform (p. 118).

The following chapter, by Robert Sterling, surveys contemporary accounting research and dismisses much of it as 'anthropology', whereas accounting practice is 'numerology' (p. 139). He calls for research to be redirected towards practice, in the interest of both activities.

Colin Lyas then contributes the only paper by a professional philosopher. It seems that philosophers write more clearly and interestingly on philosophical issues than do accountants. His paper is certainly highly readable, and the reviewer's dictionary was not pressed into service. The subject is accounting and language. After explaining some basic ideas of linguistic philosophy, Lyas considers the extension of the ideas 'true' and 'fair' to accounting: a process which is 'loaded to the gunwales with a philosophical cargo of millenia of discussions about truth, reality, justice and fairness' (p. 158). He concludes with observations on the possible role of an accounting court in resolving such issues, and of the role of academics in airing them: both were subjects of central concern to Eddie Stamp.

Richard Mattessich then provides a survey of recent accounting research and attempts a classification into paradigms, drawing on the work of Butterworth and Falk. This is a formidably, perhaps overwhelmingly, erudite paper (with 11 pages of references), which attempts to demonstrate that the development of accounting thought is comparable with that in 'other scientific disciplines' (p. 206). The status of accounting as a scientific discipline is questioned in the final two chapters of the book. In the first of these, Murray Lindsay, a former student of Eddie Stamp, argues that the social sciences in general and accounting in particular 'are not operating within the requisite critical attitude' (p. 239) to meet the requirements of scientific method. However, he does see 'no reason why the social sciences should not be scientific in much the same sense that physical sciences are' (p. 242) and he proposes certain improvements in method, particularly an emphasis on replicating empirical results, which would help to bring this about.

The final, and longest, chapter is, appropriately, by Philip Stamp, Eddie Stamp's son, who, as a practising physicist, addresses the issue 'in search

of reality'. He provides a fascinating account of quantum physics and its complications for the concept of reality in physics: quantum reality is far removed from our everyday concept of the real world. He then turns to linguistics, as a 'softer' discipline which has recently laid claim to scientific status. Finally, he turns to accounting and makes the telling point (ignored by Lindsay and the earlier contributors who touch on the topic of accounting as a science) that 'the fundamental molecules of economics have minds of their own' (p. 292). However, given the elusive nature of reality in the natural sciences, he concedes that 'one may also discern a similar substratum of reality in economics and accounting, but it is far more ghostly than anything we have seen so far' (p. 294).

He concludes that the 'open system' nature of accounting means that it is unlikely, in the foreseeable future, to make much progress by attempting to evolve 'closed' theories in the manner of physics. This is a conclusion with which his father would probably have concurred (Eddie Stamp was never entirely predictable, so we have to deal in probabilities: this is, apparently, a characteristic of quantum physics as opposed to classical physics!). Moreover, Eddie Stamp would undoubtedly have appreciated the clarity and the occasionally trenchant style of his son's exposition.

Overall, the impression this book leaves is one of diversity in approach but convergence in conclusions. No attempt is made to draw together the conclusions, and this would be inappropriate, given their open-ended nature: the object of the book is to stimulate debate, not to conclude it. However, certain themes do recur. These include the essentially fragile nature of knowledge and even reality in all fields of enquiry, and the importance of an accepted experimental and critical process as being the heart of scientific endeavour, rather than a fixed set of beliefs (as in the more naïve views of the conceptual framework). The status of accounting as a science is generally agreed to be rather different from that of the natural sciences, both in subject matter and in current state of development, but there is a general acceptance of the view that the application of a more systematic methodological approach, particularly in relating empirical evidence to theory, would offer the prospect of greater insight into the problems of accounting. The jurisprudential approach to accounting, espoused by Eddie Stamp in his later years, receives a degree of support, and is consistent with these broad conclusions. However, the authors pay proper tribute to Eddie Stamp and his sternly independent approach to the subject by speaking their own minds and not turning the book into a panegyric.

An example of this is Mumford's telling critical

point (p. 26), concerning Stamp's studies of the attitudes of members of the Accounting Standards Committee: 'The difficulty is in the lack of any theoretical connection between the views of a sample of accountants, even senior ones, who are members of a standard-setting board, and any demonstrable set of user needs' (p. 26). Thus, it is ironical that a self-styled anti-establishment figure such as Stamp should turn to studying the opinions of 'the great and the good' of the accounting profession as authority for desirable qualities of accounting standards: perhaps this contradiction is also implicit in his espousal of a jurisprudential approach. This is the type of apparent inconsistency that Stamp himself would have loved to point out, preferably with the aid of a punchy headline such as 'Stamp on Stamp'!

University of Cambridge Geoffrey Whittington

Audits of Non-profit Organisations. Canadian Institute of Chartered Accountants, 1993. 88 pp. C\$19.50.

This slim volume is one of a series of CICA publications which includes 'good working papers', 'confirmation of accounts payable', 'the first audit engagement', 'audit of inventories/small business/real estate operations', 'confirmation of accounts receivable' and so on. The book is subtitled 'an audit technique study'. The description 'audit technique' could have been given greater prominence (it is printed in silver on a shaded background which renders it invisible at certain angles) and the description 'study', may be seen as conveying connotations of 'research', but, in fact, a more accurate description would be 'recommendations on best practice'.

This book is the product of a study team which comprised practitioners in Canada. The study addresses the audit of organisations such as charitable and voluntary organisations; professional bodies; and social, recreational and religious organisations. It excludes consideration of central and local government and of major public undertakings (such as state corporations) and services (such as health care). It contains four chapters and six appendices. The first chapter is an introduction; the second is an audit approach; the third chapter is on the audit of specific account balances or classes of transactions; the final chapter is on other considerations and auditor's report. The technical, procedural approach permeates this book. There are tantalising glimpses of the complexities of auditing and organisational life, but these are not addressed other than in a superficial manner. For example, in its discussion of internal control, the study team observes that,

corporate culture [emphasis inserted] may have a strong influence on the effectiveness of internal control, particularly because it directly impacts (sic) the control environment (para 30, p. 9).

After a few further brief sentences on this breathtaking impact of corporate culture, the text reverts to a more technical, procedural approach. Another example of the tensions between recent accounting research and the more procedural orientation adopted by this book is evident in its treatment of the issue of 'users' needs'. It does explicitly address this topic, and credits much of the research of the 1970s which appears to have filtered through to practising accountants. The particular approach recommended in this book (chapter 2, para 12) is that the auditor should make enquiries of the management of the organisation to be audited. However, the recommendations of this text appear to take at face value the lists of recipients of such statements, as provided by management, as the set of potential users. It also appears to accept management's perceptions of these users' needs as being sufficiently precise and robust to guide the audit process. It is just possible, of course, that such an approach will lead to a dance, elaborate or otherwise, without much meaning or purpose.

However, if one accepts that this text does at least recognise complexities of the audit role (even if it does not provide satisfactory answers to these dilemmas), reassurance might be sought from the more technical, procedural material in this book. The extent of this is shown in the appendices: Appendix 1—glossary; Appendix 2—summary of audit procedures suggested in the study; Appendix 3—engagement letter (pro forma); Appendix 4—letter of representation; Appendix 5—examples of auditors' reports; Appendix 6—list of policies and procedures relating to revenue. All of this is material of potential interest to practising auditors of the kinds of non-profit organisations (independent schools, churches and so on) which fall outside the mainstream of public sector audit.

University of Edinburgh

Irvine Lapsley

Socially Responsible Accounting. *M. R. Mathews.* Chapman & Hall, 1993. ix + 250 pp. £15.99.

Professor Mathews has been a prominent presenter of social accounting research internationally for many years. Accordingly this reviewer approached *Socially Responsible Accounting* with considerable anticipation and was not disappointed.

Socially Responsible Accounting is a textbook primarily designed for undergraduate and masters degree students in accounting and business. It will also be of interest to professional accountants and industry decision-makers. In it, Professor Mathews argues the case for and explores the prospects for extending the boundaries of traditional accounting. He contends that his approach is an evolutionary rather than revolutionary critique. This amounts to accepting the current capitalist structures of western style economics but advocating critique and change within those economic, institutional, and social structures.

The text includes 10 chapters with literature references listed for each, as well as author and subject index. Layout is clear, headings and sub-headings are judiciously used to facilitate ease of reading, and the ready use of tables and diagrams greatly facilitates reader comprehension of issues and arguments.

The contents are briefly outlined as follows. Chapter 1 introduces the text and its organisation and states the author's 'evolutionary' philosophy. In Chapter 2, various schools of thought that may justify additional disclosures are discussed. These include market, social contract, organisational legitimacy and radical approaches. The author then presents his classifications and definitions within social accounting in Chapter 3. He breaks social accounting into five components:

- Social Responsibility Accounting (SRA)
- Total Impact Accounting (TIA)
- Socio-Economic Accounting (SEA)
- Social Indicators Accounting (SIA)
- Societal Accounting (not accorded an acronym)

A chapter is devoted to each of the above.

The SRA chapter (Chapter 4) covers conceptual and operational models, the potential role of management accounting, employee reports, accounting and industrial democracy, human resource accounting and value added statements. Chapter 5 covers SRA in practice, reviewing and commenting on a range of international studies. Total Impact Accounting (TIA) is introduced in Chapter 6. It covers the evaluation of externalities, valuation and disclosure models, social audit and the emergence of environmental economics and environmental accounting.

Chapter 7 reviews Socio-Economic Accounting (SEA), which covers such topics as cost-benefit analysis, planned programmed budgeting systems, socio-economic accounting, evaluation models, institutional performance evaluation and value for money auditing. In Chapter 8, the author covers Social Indicators Accounting (SIA). This includes goal indicators, an international review of macro-social indicators, change indicators and

macro/micro indicators. Chapter 9 briefly discusses a systems based global view of Societal Accounting, and conclusions and implications are provided in Chapter 10.

The subject matter covered in this text arguably concerns the most dynamic issues at the cutting edge of national, social and industry policy today. Accordingly it is all too easy to engage in debate and critique. With that proviso in mind, this reviewer will offer some personal observations. Chapter 2 provides a very useful review of market, social contract, organisational legitimacy and radical approaches but inserts a discussion of culture that does not sit entirely comfortably amongst the discussions. In contrast to the integrated treatment of papers related to the other approaches, it also treats the radical approach by outlining a fairly lengthy 'shopping list' of prior studies. The contribution made by Chapter 3 to classifying and defining key elements of 'socially responsible' accounting is a very positive feature of this text. The task is, however, a monumental one, and inevitably open to challenge and debate. The classifications and definitions offered in Chapter 3 would benefit from the citing of supporting evidence and literature references. Clarity is also somewhat impeded when definitional material supplied at the beginning of a chapter such as Chapter 6 (TIA) is not entirely consistent with the TIA definition offered in Chapter 3. Chapter 4 offers a first class review of available conceptual models from the SRA literature and Chapter 5 offers valuable reviews of SRA practice studies from around the world.

Social auditing is rather briefly covered and seems to sit somewhat uncomfortably in the TIA chapter, applying, as the author admits, also to SRA. The definitional and classification problem also surfaces again when the Linowes socio-economic operating statement is included in the TIA chapter. Nevertheless, the chapter does provide a very useful introduction to environmental accounting. It relies solely on Professor Gray's pioneering work in this field, but that reflects his deserved pre-eminence. Against this stands a somewhat curious total reliance in the chapter on SEA on one article by Dennison to review planned programmed budgeting systems (PPBS). This neglects contributions by many other writers and the experience with program budgeting in the UK, Australia and New Zealand. In the same chapter an interesting explanation of the stake model for evaluating processes and outcomes in education is presented. Professor Mathews' conclusions about the cost efficiency emphasis of value for money auditing are surprisingly pessimistic and in this reviewer's opinion, worthy of more debate.

This text offers excellent section and chapter summaries that will greatly assist both student and professional readers. References are listed for each

chapter, but are all located at the back of the text. This is most inconvenient for the reader who wishes to check reference details periodically while reading a chapter. Some of the literature is dated in the sense that some significant papers published since the mid-1980s have been omitted (e.g. some appearing in *Advances in Public Interest Accounting*), and some papers still shown as working papers have in fact been published in journals (e.g. Lewis et al., 1982, was published many years ago in *Accounting and Business Research*).

Despite the issues raised in this review, Professor Mathews is to be warmly congratulated for a most comprehensive and ambitious undertaking. His text will provide the most accessible and broad-based student text in the field. It stands as a worthy testimony to his long-standing commitment to social accounting teaching and research. His advocacy has remained consistent from a time when many in academe and practice regarded social accounting as an ephemeral issue of minor importance, to its present position as arguably the most important public and private sector policy issue of today. Yet it is remarkable how many academic and professional accountants remain ignorant of these issues despite the greening of society and governments around the world. If they care to open its pages, *Socially Responsible Accounting* will provide them with a very informative introduction to this field.

Flinders University

Lee D. Parker

The Audit Expectation Gap in the Republic of South Africa. J. Dieter Gloeck and Herman de Jager. School of Accountancy, University of Pretoria, 1993. iii + 99 pp. Free.

This research report is based on the doctoral thesis of J. Dieter Gloeck, who is professor of auditing at the University of Pretoria. The purpose of the study is to investigate the audit expectations gap in the Republic of South Africa and to compare the findings with those of similar studies conducted in other countries. The report has four chapters. The first provides a review of the literature on the audit expectations gap. The second and third chapters report the results of two questionnaire studies. The last chapter consists of conclusions and recommendations.

The first chapter discusses the role of the auditor, the development of the concept of an 'expectations gap', the factors contributing to the expectations gap and various approaches that have been proposed for narrowing that gap. Presumably, each of these sections is dealt with in considerably more depth in Dieter Gloeck's doctoral thesis. In the research report, certain areas are

so summarised that they are unlikely to be helpful to the uninformed reader. For instance, it is stated (p. 2) 'that the following conditions indicate the need for an audit: conflict of interests; the consequences of incorrect information; complexity; isolation of users'. This is not followed by any explanation of why these particular conditions are significant.

The focus of the chapter is also suspect. Although all the main aspects of the audit expectations gap are at least mentioned, they are not developed in such a way that the reader is clear about the gap between the public's expectations in a particular area and what auditors are willing and capable of delivering. The confusion in the public's mind about the respective responsibilities of directors and auditors is not explored. To narrow the audit expectations gap it would appear to be important to distinguish clearly between their respective responsibilities.

Finally, although the research report was published in September 1993, it fails to mention two significant UK publications in 1992: the Cadbury Report on the financial aspects of corporate governance and the Auditing Practices Board's paper on the future development of auditing.

The expectations gap in South Africa was investigated by means of questionnaires which were sent to 11,792 individuals identified as being financially knowledgeable and to 4,303 individuals in public practice (auditors). Usable responses were received from 4,470 financially knowledgeable individuals and 1,374 auditors. The researchers claim (p. 33) that no other study on the expectations gap anywhere in the world took into consideration replies by more respondents.

Analysis of the responses indicates that there is an audit expectations gap in South Africa and that there are three main areas of concern: the lack of independence of auditors; uncertainties regarding the role of auditors (particularly in regard to fraud and going-concern issues); and dissatisfaction with the compulsory audit of small owner-managed companies.

The findings on auditor independence ought to be of considerable concern to the auditing profession in South Africa. Almost 60% of financially knowledgeable respondents were of the opinion that the auditor is *strongly* influenced by the management of the company which he/she audits. Amongst stockbrokers, 70% were of this opinion. Only 42% of members in public practice did not agree with this view, which is particularly disturbing.

This document's contribution to knowledge is to inform us that an audit expectations gap exists in South Africa. The findings are generally consistent with those of similar studies conducted in Canada, the US, the UK, Australia and New Zealand. The

long-term future of the auditing profession, as presently constituted in these countries, is likely to depend on the profession's success in narrowing the gap. The findings of this South African study would be of interest to those who are involved in that task.

University of Stirling

W. M. McInnes

Company Financial Reporting. A Historical and Comparative Study of the Dutch Regulatory Process. *Stephen A. Zeff, Frans van der Wel and Kees Camfferman.* North-Holland, 1992. xv + 410 pp. Fl 190 or \$100.

Dutch financial reporting and its associated regulatory processes offer an intriguing prospect to the English-speaking reader, who is typically unable to read or speak Dutch, and who has hitherto had to rely mainly on the occasional English writings on the subject by Dutch authors. These have offered tempting, but incomplete, glimpses of the subject by focusing on some characteristic Dutch institutions such as the Tripartite Study Group (a body bringing together users, preparers and auditors of accounts to develop guidelines for financial reporting) and the Enterprise Chamber (often referred to as an accounting court), and on some notable Dutch theoretical contributions such as replacement value accounting (as practised by Philips and justified by Limperg's theory of business economics) and the concepts of 'insight' (*inzicht*) and the 'faithful picture' (*getrouw beeld*) which are supposed to guide Dutch accounts and their auditors.

The obvious need for an authoritative account in English of the Dutch system of financial reporting and its historical development has now been met by Professor Zeff and his two Dutch co-authors, who have produced a work of formidable scholarship, based on original documents supplemented by interviews with key participants in, and observers of, the events of recent years. This book is undoubtedly an important one, and is likely to become a standard work of reference on the subject. It is also to be hoped that it will stimulate further work by others, because, as might be expected, it raises many important issues which require further investigation.

The selective nature of much of the previous information available in English about Dutch financial reporting raises the possibility that the overall impression may have been misleading, and this possibility is given substance by the book under review. For those, like the reviewer, who have tended to believe, on the basis of casual knowledge of the Dutch system, that financial reporting in the Netherlands has achieved a very high standard which might serve as a model to which the UK and other countries

might aspire, the following facts create a rude awakening:

The development of financial reporting in the Netherlands has been painfully slow. Rudimentary requirements for financial reporting were imposed by statute only in 1928, at the end of a tortuous process which started with the appointment of a government commission (the Kist Commission) in 1879 (*Chapter 2*).

The 1928 requirements did not specify the contents of the profit and loss account. Secret reserves were permitted (and were common practice), consolidated accounts were not required, and the audit was not mandatory. This situation persisted until the 1970 Act on Annual Financial Statements (*Chapter 4*).

The widely publicised practice of replacement value accounting has always been a minority practice, and its adoption by Philips in 1945–1946, which is the most widely cited example, was driven to a significant extent by the need to replace secret reserves (created by writing assets down to negligible amounts) by a system which had less severe effects on reported profits but still allowed substantial depreciation charges which would restrict distributable profits (*Chapter 3, pp. 77–78*). When the EC Fourth Directive was implemented in the Netherlands, in 1983, pressure from preparers of accounts and auditors prevented any requirement for current cost accounting, although it was permitted (*Chapter 6*).

The Tripartite Study Group (TO) was slow to produce definitive guidelines, and even these were intended to provide guidance rather than binding standards. The TO was subsequently reconstituted as the Council on Annual Reporting (RJ), which is better resourced (*Chapter 6*), but its rate of output has been slow and its exposure drafts and guidelines are advisory rather than mandatory, as were those of the TO (*pp. 310–316*).

The Enterprise Chamber has not, as had originally been hoped, explicitly considered the pronouncements of the TO and the RJ in its judgments. This has weakened the impact of these pronouncements. The Enterprise Chamber itself had a relatively small impact, dealing with only 45 cases involving financial reporting between 1977 and 1991, and requiring remedial action in only 23 of these (*pp. 339–343*).

These striking facts should not, however, be taken to imply that the Dutch system of financial reporting is a bad one, or that its history is without

interest. Professor Zeff and his colleagues place the Dutch experience in its historical and institutional context and compare it with that of the UK and the US (*Chapters 1 and 7*). The Netherlands is a small country, with a greater sense of community and homogeneity than the other two, and therefore has an environment which is more conducive to the mutual trust which is implicit in such general guidance as the 'faithful picture' and more receptive to the persuasion which is implicit in the Dutch 'guidelines', in contrast with the compulsion implicit in UK and US 'standards'. In the Netherlands, the corporate income tax is not based rigidly on reported profit, as in Germany, and this does enable financial reports to be free to express a true and fair view to stakeholders, as in the UK and the US (the Dutch equivalent being the 'faithful picture'), but the Netherlands also has what might be described as continental European characteristics in its corporate structures. The capital market is less important than in the US and the UK, companies have two-tier boards of directors (the supervisory board containing some employee representatives), and contested takeovers are rare. Thus, there is less demand for public investor information of the Anglo-American variety, except in the very largest companies, whose shares are internationally traded. It is the latter companies, particularly Philips, Unilever and Royal Dutch Shell, which have created the high reputation of Dutch accounting abroad and have led change at home.

In the final two chapters of the book, Professor Zeff and his colleagues ponder some of the above characteristics of Dutch accounting and attempt to draw some policy conclusions. They conclude that some of the emerging pressures on the Dutch system may well direct it towards something like the Anglo-American model. In particular, they point to the impending implementation of the Thirteenth Directive of the EC, which may facilitate contested takeovers, and the increasingly international nature of capital markets, which is one of the forces behind the IASC's programme of international standardisation of accounting. The authors may be correct in their view that the world is becoming more homogeneous in terms of accounting practice. Whether the rest of the world is likely to become more like the US, as the authors seem to expect, is a more contentious matter. In some ways, the final chapter of the book is a little disappointing, not for what it says, but for what it does not say. There may be some aspects of the Dutch system which are different from the Anglo-American system but which may point to future developments in the EC or the wider world, e.g. two-tier boards of directors may have a significant impact on the nature and form of financial

reporting. The authors do not address such issues in any depth.

This raises the broader issue of questions which the book raises for future research. The historical treatment of the development of financial reporting institutions, statutes and guidelines is thorough, quite detailed, and unlikely to be bettered for some time, if ever, e.g. the interviews will not be replicable in the future as memories fade and participants in historical events die. However, the authors provide a much lighter treatment of the development of ideas and of accounting practice. Thus, there is still scope for a deeper study of the development of Dutch accounting thought, as a companion to the present study. Equally, a study of the development of practice in both accounting and auditing would provide a necessary complement to the present study of institutional evolution. The success of a regulatory system depends ultimately on the quality of its product and, although we are given occasional glimpses here of accounting practice and compliance with guidelines, the evidence is mainly impressionistic. It seems that the Netherlands has, despite the limitations of its financial reporting systems, avoided any major public accounting scandals, such as those which have shaken the US and UK systems. We do not know whether this is because the Dutch system has always been sound, in its own context, or whether it is due to the secretive nature of a relatively small and closed society, which does not reveal its scandals in public.

Cambridge University Geoffrey Whittington

Environmental Accounting and Auditing: Survey of Current Activities and Developments, 1993.

Fédération des Experts Comptables Européens, 1993. 67 pp. BFr 1,500.

Whilst social and environmental accounting remained something of a minority sport, it was difficult to gather information about social and environmental practices, especially outside one's own country. With the rapid expansion of the environmental agenda, the opening years of the 1990s have seen a veritable flurry of surveys seeking to monitor the blossoming environmental reporting practices of companies. A number of these surveys have been of an international orientation—the United Nations Center for Transnational Corporations surveys, the work done by Clare Roberts for the ACCA, the KPMG annual surveys—and are especially interesting as a result. The present publication also reports the results of an international survey and nicely complements the earlier surveys.

The report outlines the results of a questionnaire survey sent to the professional accountancy bodies who are members of FEE. The resultant summary of responses from 12 EC and five EFTA country bodies makes for a comprehensive outline of professional body attitudes and activities throughout Europe. The report consists of four chapters which cover a brief introduction, a chapter of summary and conclusions and one chapter on each of environmental accounting and environmental auditing. The report concludes with appendices which contain the form of the questionnaire, the EC Fifth Action Plan on the Environment ('Towards sustainability') as it applies to accounting, details of EMAS (the Eco-Management and Audit Scheme) and, finally, one illustration of a Dutch 'waste model review report' which, we learn, requires the attestation of accountants.

The meat of the report is contained in Chapters 3 and 4. Each chapter is divided into three sections: professional body activity; standard setting activity; and company/audit firm activity with respect to environmental activity and environmental auditing. If one were forced to summarise European activity on environmental accounting and auditing as manifested by the professional accountancy bodies one would be compelled to say that not much of real substance is taking place.

On environmental accounting, whilst there is much discussion of how environmental issues might be reflected in existing accounting frameworks and some commissioning of environmental accounting research (with which the UK would appear to be well-provided), none of the respondents is active in seeking to establish any particular framework for accounting for the environment and, in particular, none seemed to be exercised by the potential raised by the challenge of sustainability—despite the EC Fifth Action Plan. The pace for environmental accounting and reporting appears to be set by the reporting companies themselves (the notable example of BSO/Origin is mentioned) and by independent research organisations such as IÖW working with companies in the development of the German and Austrian Ökobilanz.

There is more activity in the field of environmental auditing. But here the distinction between the statutory independent attestation of financial statements and the development of environmental auditing as anticipated under BS7750 and EMAS is at times blurred—partly through an apparent lack of understanding of the issues involved and partly through the very different professional body structures and activities in the different European countries. The lead is apparently being taken by the professional bodies in Denmark and the Netherlands, but elsewhere, it would appear, professional accountancy bodies are reluctant to

become too involved, explicitly, in this area for the time being.

The FEE report is a welcome addition to the international literature on environmental accounting and auditing. One will not find any high theory or heavy prescription here but the coverage of 18 European countries gives a most useful and comprehensive picture of an international profession still unsure quite what, if anything, to do about this thing called the 'environment'. Let us hope they start to make their minds up quickly.

University of Dundee

R. H. Gray

Financial Reporting in the West Pacific Rim. *T. E. Cooke and R. H. Parker (eds.)*. Routledge, 1994. xi + 448 pp. £50.

This book consists of chapters on 10 countries (Japan, South Korea, Taiwan, Hong Kong, Thailand, Malaysia, Singapore, the Philippines, Australia and New Zealand) preceded by an introductory overview by Parker. The brief preface makes several fundamental points. First, the approach is largely descriptive, intended to provide a starting-point for future analysis and development. Second, although a framework of chapter contents was provided to contributors, no attempt has been made to standardise content or, just as importantly, style.

Such flexibility is surely correct. The contributors are mostly more-or-less local to their topic area and the economic, historical, political and philosophical environments of the chosen countries vary significantly. Most of the chapters are very properly grounded in the social and cultural environment of the country concerned, often including significant external influences from 'colonial' days, before continuing to survey accounting practices and the role of the profession. Each chapter includes illustration from actual published accounts, usually only in English, and most chapters make an attempt to outline major differences from practices in the UK, US, or both, and from IASs.

Another sentence in the Preface rings all too true to this reviewer: 'The gestation period of the book has been substantial, reflecting the difficulty of co-ordinating this type of project and the variety of publication problems encountered.'

This gestation period is all too evident from the dates of the audit reports of the illustrative accounts — 28 February 1990 for the Philippines, in a book with a 1994 copyright. Much of the writing appears to have been carried out in 1991 or 1992. The Japan chapter (by Cooke) is updated to 1993, as is the Hong Kong chapter (which

includes an excellent table cross-referencing IAS, HK, UK and US GAAP), but both have illustrative accounts signed on 21 May 1991. Not all chapters are so updated, and the use of the present tense, or words such as 'recent', in such circumstances, creates a lack of precision at times. Incidentally, proof-reading is distinctly fallible.

Like any other, this book should be judged by its own objectives. It sets out to provide descriptive summaries of financial reporting in the major economies of the region, in full cognisance of the historical and cultural contexts in which that financial reporting operates. As such, it successfully provides 400 pages of condensed expertise, and a useful and interesting introduction. Lecturers and students seeking to extend the boundaries of international accounting comparisons will find it an essential reference work and the key to relevant, if not always recent, further reading. It will need updating every three years. We shall see if the publishers have faith.

University of Hull

David Alexander

A Qualitative Standard for General Purpose Financial Reports: A Review. *M. A. Sadhu and I. A. Langfield-Smith*. Australian Accounting Research Foundation, 1993. xii + 81 pp. A\$20.

This discussion paper from the AARF examines qualitative standards (such as the true and fair view (TFV) requirement) with the objective of contributing to the debate on the appropriate standard for Australia. The issue is particularly topical in Australia, given the recent introduction of mandatory status for the concepts statements, followed by the even more recent withdrawal of that status. Given, also, the removal of the overriding nature of TFV in 1991 (and in 1993 in New Zealand), there have been examples of Australian annual reports containing two sets of financial statements: one 'legal' and the other 'true and fair'.

After an introduction, the paper investigates the role of a qualitative standard. Then there is a detailed examination of the TFV on an international basis, looking at laws and at theoretical and empirical studies. The detail and the referencing are commendable, although it is curious that, several times, the authors rely on (and reprint) quotations by other writers rather than looking at original documents, even when the authors have spotted transcription errors in the quotations.

Chapter 4 looks at alternative qualitative standards, principally comparing the merits of TFV, conceptual statements and references to generally accepted accounting principles. Not surprisingly, the paper can come to no firm conclusion. Chapter 5 takes this further by looking at the nature of

overriding provisions. It becomes clear that the Australian 1991 rules have not removed ambiguity on the subject of TFV. The debate seems to cover ground surprisingly like that of the analogous debate in Germany concerning when TFV demands extra information. Chapter 6 sets out a detailed request for comments, and the appendices reprint various relevant national requirements.

This paper is well written and interesting to read. It can be recommended to rule-makers, staff and students in the field of financial reporting.

University of Reading

Christopher Nobes

The Stock Market. *Cliff Pratten.* CUP, 1993. xiv + 212 pp. £27.95.

The title of this book is rather misleading. It implies a general tour of the stock market and related securities. In fact, it concentrates on only one aspect of the stock market: how investors adjust for the uncertainty associated with equity valuation given the volatility and unpredictability of share price movements. It also adopts an economics rather than finance-driven approach to the stock market, favouring Keynes' propositions concerning share price volatility and deprecating Professor Brealey's criticisms of Keynes in this area.

The book is divided into five sections. The first part considers alternative theories that might explain the volatility of share prices; those put forward by Keynes in the 1930s; those embedded in the Efficient Markets Hypothesis (EMH) of the 1970s, as well as a range of behavioural theories to do with trading mechanisms and information flow put forward in the 1980s. The second part describes the stock market—UK only—in terms of the historic returns that have been achieved on shares, both real and nominal, in order to examine actual share price volatility and to try to get a feel for whether cash flow forecasts are reflected in share values. The third section gives the results of a survey of fund managers whose purpose was to elicit information on how the markets work in practice. The fourth section reviews other evidence bearing on the operation of the stock market, for example, how Keynes himself invested in the market, how fund managers have performed, and the extent of the influence of the press in share prices. The final section of the book provides the author's conclusions on whether the evidence supports Keynes' propositions or not and whether equities were undervalued at the time of the author's study.

One of the difficulties with the book for the reader generally interested in the stock market is its emphasis on Keynes and on whether his seven

'propositions' hold in practice. These propositions have been put together by the author and not directly by Keynes and are derived from the author's perusal of Chapter 12 of Keynes' writings. The problem with the remainder of the book stems from this chapter. The author fails to turn the propositions into clear testable hypotheses and also fails to state clearly how they differ from the propositions embedded in the EMH. The theoretical chapters all suffer from too much description of the theories put forward without much analysis of the implications for the empirical results cited in the book.

The second section of the book holds the most interest for the reader, in particular the chapters on the slow growth of real dividends and the undervaluation of equities. In these chapters, the author uses data from 1926 to 1990 to show that real dividends increased by only 83% ('an incredibly small increase') during the period compared with real earnings growth of 147% and real share price growth of 131% during the same period. However, he fails to derive satisfactory conclusions from this. He concentrates on possible explanations for what he deems to be poor real dividend growth, such as changes in inflation, shocks to the economy, and the role of politics, but fails to explain the comparative statistics which he provides for the US, Japan, Germany and France. He also fails to explain why it matters; if real share prices rose by more, it may simply be that there was more emphasis on capital gain rather than on dividend income during the period, encouraging companies not to raise their dividends in line with their profits.

The chapter on undervaluation of equities is also of interest, although the author fails to explain how high real returns on equities relative to bonds over the same period relate to the previous chapter on low dividend growth. The author argues that the relatively high returns on equities during the post Second World War period, in particular, are a reflection of consistent undervaluation of equities. If this trend had been foreseen, shares would have been re-rated upwards as a consequence. The author argues that the fact that this did not happen contradicts the EMH.

The third section is based on interviews with 18 investment managers, two firms of actuaries and two market makers. The author does not appear to use a questionnaire, preferring to rely on general discussions. This section is, as a result, rather inconclusive, with opinions from interviewees intermingled with descriptions of how markets work. The fourth section is also rather a hotch-potch and does not add anything to the flow of the arguments.

In the concluding section, Chapters 16 and 17 address the issues of whether or not the rather

subjectively chosen empirical evidence supports Keynes and/or the EMH. However, Chapter 18 rather oddly reverts to the topic of whether equities were undervalued as at September 1991, the date of the study, making for a rather disjointed structure overall.

In all, this book is for the economist rather than for the investor, and appears designed for the student or academic rather than the general reader.

Open Business School

Janette Rutterford

International Holistic Business/Management Network First World Congress January 1995

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A cover page should show the title of the paper, the author's name, title and affiliation, and any acknowledgements. The title of the paper, but not the author's name, should appear on the first page of the text. An Abstract of 150–250 words should be provided on a separate page immediately preceding the text.

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Each table and figure should bear a number and a title and should be referred to in the text. Sources should be clearly stated. Sufficient detail should be provided in the heading and body of each table and figure to reduce to a minimum the need for cross-referencing by readers to other parts of the manuscript. Tables and figures should appear at the end of the paper, with its most appropriate placing noted in the paper itself.

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Mathematical notation

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EDITORIAL 98.

Factors Affecting Income Smoothing Among Listed Companies in Singapore

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Abstract—The objective of this study is to identify the factors associated with the incidence of income smoothing. The sample comprises 153 companies listed in the Singapore stock exchange during the period 1980 to 1990. Descriptive statistics indicate that income smoothing is practised and that operational income is the most common income smoothing objective. Four hypotheses relating income smoothing to company size (total assets), profitability (net income after tax to total assets), industry (industrial and commercial, hotels and properties, and others), and nationality (Singaporean and Malaysian companies) are tested in the study. Results from t-tests of differences, chi-square tests of independence, and logit analyses largely support the alternative hypotheses put forward except for company size. The primary findings are that income smoothers tend to be less profitable companies, companies in more 'risky' industries, and Malaysian companies. It is hoped that this study, which is conducted in an economically and a culturally different context from all existing studies, can contribute towards the current literature on income smoothing.

Introduction

Income smoothing, or deliberate voluntary acts by management to reduce income variation by using certain accounting devices, has been a topic of interest in the accounting and finance literature for some time. It has been suggested that income smoothing is, in fact, a logical and rational practice. Beidleman (1973), for example, believed that management smoothes income to create a stable earnings stream and reduce covariance of returns with the market. Further, Barnea, Ronen and Sadan (1975) and Ronen and Sadan (1981) suggested that managers engage in income smoothing to dampen fluctuations in reported net income and to enhance investors' ability to predict future cash flows. These are expected to have beneficial effects on share values as well as on managers' performance evaluation.

Previous studies show that income smoothing is a fairly common phenomenon. It has been detected in varying degrees across different samples. When

income is deliberately and artificially smoothed, inadequate or misleading income disclosure may result. Consequently, investors may not get sufficiently accurate information about earnings to evaluate the returns and risks of their portfolios. Hector (1989) has referred to income smoothing as one of the common abuses in financial reporting that users should be wary of and McHugh (1992) has described it as a manipulation of financial information. Hence, the concern about income smoothing and the need for appropriate research.

Also, findings on income smoothing can have important implications. For example, they can serve as supplementary information to financial statement users and enable them to take the necessary precautions when interpreting financial data. In addition, the findings can be useful to regulators in deciding the extent to which they should monitor and control managers' actions in order to protect external parties such as present and potential investors.

Given the above, the objective of this study is to identify factors associated with the incidence of income smoothing. The paper is divided into four sections. The first section reviews the literature on income smoothing and the second section discusses the research methodology employed in the study. The third section presents the results and implications. Finally, the last section summarises the findings, highlights the limitations and suggests directions for future research.

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Literature review

Reasons for Income Smoothing

Hepworth (1953) introduced the concept of income smoothing when he proposed that it was logical and rational for managers to attempt to smooth income by using certain accounting devices. He suggested several reasons for income smoothing. First, through the judicious 'juggling' of income and expense items over a period of years, management can reduce a company's overall tax liability. Second, a smooth income stream can enhance investor confidence because stable earnings support a stable dividend policy, which is desirable. Third, income smoothing can enhance the relations between managers and workers because a sharp increase in reported profits may lead to demands for higher wages. Fourth, smooth income streams can have a psychological impact on the economy in that cyclical upswings and downswings can be countered and waves of optimism and pessimism moderated.

In addition to the above reasons for income smoothing, Gordon (1964) suggested that income smoothing could lead to less stockholder bias in extrapolating past income to estimated future income. Ronen and Sadan (1981) also suggested that income smoothing was consistent with management's desire to maximise its compensation. Further, Lambert (1984) and Dye (1988) demonstrated, in agency settings, that a risk-averse manager who was precluded from borrowing and lending in capital markets had the incentive to smooth income. Similarly, Trueman and Titman (1988) showed that even within a market setting with creditors, managers preferred alternatives that resulted in a smoother income stream. (See also Suh's (1990) formulation of income smoothing as a communication tool in an agency context.) Hence, the literature suggests strong motivations for managers to smooth income.

General Overview of Income Smoothing

Besides advancing arguments for income smoothing, several researchers have also investigated the phenomenon empirically. These studies invariably focused on the incidence of income smoothing (including investigating its instruments and objectives) and/or factors associated with it.

According to Ronen and Sadan (1981), income smoothing can be accomplished in three ways. First, management can time the occurrence of certain events over which it has discretion (e.g., research and development) to reduce variations of reported income. Alternatively, management can also time the recognition of such events. Second, management can allocate certain revenues and expenses over different accounting

periods. For example, in computing income, management can choose either the straight-line or the accelerated method of depreciation. Third, management may have discretion to classify certain income items into different categories (e.g., between ordinary items and extraordinary items).

Previous studies have investigated income smoothing instruments such as dividend income, changes in accounting policies, pension costs, extraordinary items, investment tax credit, depreciation and fixed charges, discretionary accounting decisions, exchange differences, accounting classifications, and reserves and provisions. Further, previous studies have also looked at possible determinants of income smoothing such as company size, industrial sector, bonus schemes, barrier to entry, and ownership. Some of the major studies are summarised below.

Specific Studies

Gordon, Horwitz and Meyers (1966) examined the relationship between the method of accounting for investment tax credits (income smoothing instrument) and the growth rates of earnings per share and return on stockholders' equity (income smoothing objectives). Their results indicated a significant relationship between the two, suggesting the existence of income smoothing in practice.

Later studies such as Archibald (1967) on depreciation methods, Cushing (1969) on accounting changes, and Dascher and Malcom (1970), Barnea, Ronen and Sadan (1975), and Ronen and Sadan (1975) on extraordinary items also reported income smoothing behaviour among sample companies. In addition, Beidleman (1973) provided evidence to show that incentive compensation, pension and retirement expense, research and development costs, sales and advertising expenses were also used by companies to smooth income. Copeland (1968) and Ronen and Sadan (1976) also tested different smoothing instruments and found significant income smoothing behaviour. More recently, Ma (1988) concluded that banks used loan loss provisions and charge-offs to smooth income while Brayshaw and Eldin (1989) reported that management used exchange differences to achieve the same objective.

On the other hand, Dopuch and Drake (1966) investigated the amounts of capital gains/losses from sale of investments and could not detect any significant income smoothing. Conclusions of no income smoothing were also reached by White (1970) in his study of discretionary accounting decisions and Copeland and Licastro (1968) in their study of accounting for unconsolidated subsidiaries. However, Barefield and Comiskey (1972) studied the accounting for unconsolidated subsidiaries (similar to Copeland and Licastro, 1968)

and found some evidence of companies smoothing their income.

More recent studies emphasised the factors (variables) associated with income smoothing behaviour. For example, Smith (1976) and Kamin and Ronen (1978) showed that, compared to owner-controlled companies, manager-controlled ones tended to smooth income significantly more. The latter study also showed that barrier to entry had an effect on income smoothing behaviour.

Ronen and Sadan (1981) concluded that companies in different industries smoothed their income in varying degrees. In particular, a high degree of smoothing was found in the oil and gas, and drug industries, both of which were very much under public scrutiny. Belkaoui and Picur (1984) also reached a similar conclusion. They found that companies in peripheral industrial sectors showed a greater incidence of income smoothing behaviour than companies in the core industrial sectors. However, Albrecht and Richardson (1990) suggested that Belkaoui's and Picur's (1984) findings were dependent on company size. More recently, Moses (1987) found that income smoothing was associated with company size, the divergence of actual earnings from expectations, and the existence of bonus compensation plans. The last finding is consistent with the results of a previous study by Healy (1985).

To summarise, the literature seems to provide strong evidence that income smoothing is practised among companies in varying degrees. Also, given management discretion and control over the occurrence and recognition of certain events, allocation of revenues and expenses over time, and classification of income items, many possibilities for and methods of income smoothing exist. Finally, previous studies seem to suggest that the degree of income smoothing is associated with factors such as company size and industrial sector.

It can also be noted from the literature that previous studies have been conducted primarily in developed countries such as the US and the UK. In this respect, it is hoped that a study in an Asian country can contribute to the existing literature.

Research methodology

The objective of this study is to identify factors associated with income smoothing. The research methodology employed is summarised below.

Research Hypotheses and Variables Measurement

H1: Company size (total assets). Previous studies found that company size had an effect on income smoothing behaviour. For example, Moses (1987) reported that income smoothing was associated with company size. One explanation is that smaller

companies are likely to be subject to less public scrutiny than larger companies. In other words, larger companies are likely to receive more attention from analysts and investors, and thus more is known about them. Consequently, there is little additional value for a smoothed income signal and, accordingly, larger companies have less incentive to smooth income. On the other hand, small companies are expected to smooth income significantly more than large companies. In this study, company size is measured by total assets (after taking logarithms). Thus, the null hypothesis tested in the study can be summarised as follows:

H1: Income smoothing does not depend on the size of companies

H2: Profitability (net income after tax to total assets). Archibald (1967) concluded that a high proportion of companies smoothed their income when their profitability was relatively low. Also, White (1970) provided evidence that companies with declining profitability tended to smooth their income. Presumably, fluctuations in income streams have a more severe impact on low-profitability companies; hence, they have a stronger motivation to smooth income. Given these findings, it is hypothesised that companies with lower profitability tend to smooth their income more than companies with higher profitability. In this study, profitability is measured by the ratio of net income after tax to total assets. Accordingly, the null hypothesis is as follows:

H2: Income smoothing does not depend on the profitability of companies

H3: Industry (industrial and commercial, hotels and properties, and others). Ronen and Sadan (1981), Belkaoui and Picur (1984) and Albrecht and Richardson (1990) concluded that companies in different industries smoothed their income in varying degrees. It appears that companies in certain industries (for example, industrial sectors defined as peripheral industrial sectors by some researchers) face a more restricted opportunity structure and a higher degree of environmental uncertainty. Such companies have more opportunity and are more predisposed to smooth their income. In this study, industrial sectors are categorised into industrial and commercial, hotels and properties, and others (comprising primarily of financial institutions) in line with classifications used by the Stock Exchange of Singapore. (It can be noted that the hotels and properties industry in Singapore is highly competitive and is very reactive to international economic and political events. On the other hand, financial institutions are highly regulated and rather 'safe'.) Two dummy variables are used to capture the three industrial sectors. The relevant null hypothesis is as follows:

H3: Income smoothing does not depend on the industrial sector of companies

H4: Nationality (Singaporean and Malaysian companies). Finally and incidentally, the fact that both Singaporean and Malaysian companies are listed on the Singapore stock exchange provides a unique opportunity to test differential income smoothing among companies of different nationalities. To date, studies investigating the factors associated with income smoothing have tended to focus on micro and macro variables such as company size and industry. Thus, nationality can offer a new perspective from which to view and analyse such behaviour.

The generally accepted accounting principles (GAAP) in Singapore and Malaysia are almost identical. In particular, the accounting standards governing financial reporting in both countries are taken almost entirely from the International Accounting Standards (IASs) issued by the International Accounting Standards Committee (e.g., IAS1 to IAS28). At most, only very minor changes are made to the IASs before adoption to make them more relevant and applicable to the respective local contexts. Basically, the Companies Act of and the pronouncements (mostly adopted IASs as mentioned above) issued by the professional accounting bodies in Singapore and Malaysia, and the rules and regulations of the exchanges, dictate financial reporting practices for listed companies in the two countries.

However, despite the similarity of GAAP governing Singaporean and Malaysian companies as discussed above, the regulatory framework of financial reporting in Singapore, and the quality required, is more stringent than that in Malaysia. This is evidenced partly by the existence of a government-established Commercial Affairs Department in Singapore (whose roles include the monitoring of financial reports of companies) and by the fact that Singapore is more developed than Malaysia as a financial and business centre. Such an environment puts Singaporean companies under more scrutiny and at the same time limits the opportunity for income smoothing. Hence, it is hypothesised that Malaysian companies have more opportunity and a greater predisposition to smooth their income. Thus, a testable null hypothesis is as follows:

H4: Income smoothing does not depend on whether a company is Malaysian or Singaporean

With respect to H4, while it is possible for companies across different nationalities to have significantly different income smoothing indices for reasons other than income smoothing, there is no a priori reason why this should be the case for Singaporean and Malaysian companies. In particular, their close geographical proximity,

almost identical GAAP, and very similar economic and political structures and characteristics make Singaporean and Malaysian companies directly comparable. It can also be noted that both Singapore and Malaysia belong to the same regional economic grouping, ASEAN (Association of South-East Asian Nations), the GDP of both countries is highly correlated over the period of study ($r = 0.9596$, $p\text{-value} = 0.0001$), and the GDP changes of both countries are also highly correlated over the period of study ($r = 0.7643$, $p\text{-value} = 0.0062$).

Finally, t-test and chi-square test results show that Singaporean and Malaysian companies are not significantly different with respect to size ($p\text{-value} = 0.2331$), sales ($p\text{-value} = 0.2843$), age ($p\text{-value} = 0.6431$), and industrial sector ($p\text{-value} = 0.1930$). Thus, Singaporean and Malaysian companies can be considered generally homogeneous and directly comparable for the purpose of the study.

Measurement of variables. Given the four null hypotheses stated above, the independent variables for the study are total assets (after taking logarithms), the ratio net income after tax to total assets, industrial sectors (industrial and commercial, hotels and properties, and others) and nationality (Singaporean and Malaysian companies), respectively.

The dependent variable for the study is income smoothing, as measured by an index. For this purpose, Eckel's (1981) operationalisation of income smoothing is used. (A good description of this index can be found in the Appendix to Albrecht and Richardson, 1990.)

This income smoothing index is used for this study because it is objective and statistically based, with a clear cut-off between smoothers and non-smoothers. More important, unlike other measures of income smoothing (see, for example, Moses, 1987 and Ma, 1988), Eckel's index measures the incidence of income smoothing without resorting to earnings predictions, modelling of expected income, expenses examination, or subjective judgment. It has been noted that the specification of an expectations model is a difficult task and that an inadequate specification may result in inferences that are a function of random errors (see Imhoff, 1977). Further, Eckel's index measures income smoothing by aggregating the effects of several potential smoothing variables (instead of just one income smoothing variable at a time) and by investigating the pattern of income smoothing behaviour over a period of time (i.e., time series data are used to compute the income smoothing index instead of just one year's data).

Essentially, Eckel's (1981) approach compares income variability with sales variability to control for the effects of real smoothing (due to actual economic transactions/events) and naturally

(inherently) smooth income streams. In particular, the measurement method relies on the analysis of income and sales variability as follows:

$$\text{Income smoothing index} = (CV_I / CV_S)$$

where

I = one-period change in income

S = one-period change in sales

CV_j = coefficient of variation for variable j
(i.e., j 's standard deviation divided by its expected value)

Income smoothing is indicated by an index of less than 1. Eckel's index is developed specifically as a dichotomous measurement of income smoothing. Therefore, for the purpose of this study, the sample companies are classified as smoothers or non-smoothers, depending on whether the income smoothing index is less than or more than 1, respectively. Such dichotomous measurement of income smoothing has also been used successfully in previous studies (see, for example, Albrecht and Richardson, 1990).

It can be noted that differences in operating leverage (i.e., differences in the proportion of costs which are fixed) may cause differences in the income smoothing index even if no differences in smoothing behaviour exist. For example, the presence of a high level of fixed costs can increase the volatility of income measures such as income before extraordinary items and net income after tax. To 'control' for such operating leverage effects and to isolate the effects of the factors reflected in the four null hypotheses on income smoothing, operating leverage is explicitly incorporated as an independent variable in some of the statistical analyses. For this purpose, given the limited information contained in financial reports, operating leverage is approximated by the proportion of depreciation and amortisation expense (which is usually the main fixed cost) to total expenses.

Three possible income smoothing objectives are examined in the study. They are income from operations, income before extraordinary items and net income after tax. That is, income smoothing indices are computed for each of these income smoothing objectives and tested separately. In the study, income from operations is defined as operating income plus depreciation and amortisation (as in Albrecht and Richardson, 1990). This income measure deals, to some extent, with the operating leverage problem highlighted above by adding back the main fixed cost. For income before extraordinary items and net income after tax, the operating leverage problem is dealt with by including operating leverage as an independent variable.

Sample Selection and Source of Data

The population of interest comprises companies listed on the Stock Exchange of Singapore (SES) for the period 1980 to 1990. The financial data for such companies are captured by the financial database in the School of Accountancy and Business, Nanyang Technological University (Singapore). For this study, all SES companies available in the database are selected as sample companies. Thus, the sample is not a random selection of SES companies. Further, in view of the need to compute variation coefficients, companies with less than seven years of data are excluded from the study. Companies with incomplete data are also excluded. The final sample of 153 companies corresponds to 42.03% of the population of 364 SES companies. For each sample company, the following information is extracted or computed: total assets, net income after tax, industrial sector, nationality, operating income, depreciation and amortisation, operating leverage, and income before extraordinary items.

Statistical Methods

Several statistical methods are used to examine the factors associated with income smoothing. First, descriptive statistics (e.g., means and frequency distributions) are used to develop a profile of the sample companies. Second, univariate tests such as t -tests of differences and chi-square tests of independence are performed to investigate any significant systematic differences between companies that smooth their income and companies that do not. Finally, logit analysis is used in a multivariate setting to investigate the factors associated with income smoothing. The logit model is considered appropriate because the dependent variable is nominally measured (dichotomous) and the independent variables are either intervally or nominally measured.

The logit model can be expressed as follows:

$$\text{Status} = a + b(\text{TA}) + c(\text{NITA}) + d(\text{DIS1}) \\ + e(\text{DIS2}) + f(\text{N}) + g(\text{OL})$$

where

Status = income smoothing status of company
= 1 for smoothers and 0 for non-smoothers
(separately computed for income from operations, income before extraordinary items and net income after tax)

TA = total assets (after taking logarithms)

NITA = net income after tax to total assets

DIS1 = dummy for industrial sector 1

= 1 for industrial/commercial and 0 for others

DIS2 = dummy for industrial sector 2

= 1 for hotels/properties and 0 for others

N = nationality of company

= 1 for Malaysian and 0 for Singaporean

OL = operating leverage (included to 'control' for its effects on income smoothing and to isolate the effects of the null hypotheses as discussed earlier); not applicable for income from operations

Conclusions can be drawn by looking at the significance and numerical sign (+/-) of the coefficients b to f.

Results and implications

The results of running descriptive statistics, univariate tests and logit analyses are reported below. The implications are also highlighted in this section.

Descriptive Statistics

The descriptive statistics of the 153 sample companies are presented in Table 1. As can be seen, when income from operations is examined as an income smoothing objective, there are 75 smoothers and 78 non-smoothers. The corresponding numbers for income before extraordinary items as an income smoothing objective are 47 and 106, respectively. Finally, when net income after tax is examined as an income smoothing objective, there are 54 smoothers and 99 non-smoothers. These results indicate the existence of income smoothing practices among companies listed on the SES.

Descriptive statistics for total assets (after taking logarithms), net income after tax to total assets, industrial sectors, and nationality are also reported

Table 1
Descriptive Statistics of Sample Companies

A. Income from operations

	<i>Total sample</i>	<i>Smoothers</i>	<i>Non-smoothers</i>
Number of Companies	153	75	78
Mean for:			
H1: Total assets (TA)	5.14	5.17	5.10
H2: Net income to TA	0.03	0.02	0.04
Frequency distribution of:			
H3: Industrial/commercial	98	49	49
Others	55	26	29
H3: Hotels/properties	22	15	7
Others	131	60	71
H4: Malaysian	96	53	43
Singaporean	57	22	35

B. Income before extraordinary items

	<i>Total sample</i>	<i>Smoothers</i>	<i>Non-smoothers</i>
Number	153	47	106
Mean for:			
H1: Total assets (TA)	5.14	5.18	5.13
H2: Net income to TA	0.03	0.02	0.04
Frequency distribution of:			
H3: Industrial/commercial	98	22	76
Others	55	25	30
H3: Hotels/properties	22	18	4
Others	131	29	102
H4: Malaysian	96	38	58
Singaporean	57	9	48

C. Net income after tax

	<i>Total sample</i>	<i>Smoothers</i>	<i>Non-smoothers</i>
Number	153	54	99
Mean for:			
H1: Total assets (TA)	5.14	5.13	5.14
H2: Net income to TA	0.03	0.01	0.05
Frequency distribution of:			
H3: Industrial/commercial	98	22	76
Others	55	32	23
H3: Hotels/properties	22	21	1
Others	131	33	98
H4: Malaysian	96	42	54
Singaporean	57	12	45

in Table 1 for all sample companies as well as for smoothers and non-smoothers separately. To assess whether these independent variables differ significantly across smoothers and non-smoothers, t-tests of differences are performed on total assets and net income after tax to total assets, and chi-square independence tests are performed on industrial sectors and nationality. The results of these univariate tests are summarised in Table 2.

Univariate Test Results

As can be seen from Table 2, regardless of the income smoothing objective, nationality is statistically significant at a 0.05 significance level (the p-values are 0.047, 0.002 and 0.005 for income from operations, income before extraordinary items and net income after tax, respectively). As expected, further analysis reveals that

significantly and proportionately more Malaysian companies smooth their income than their Singaporean counterparts (see Table 1). This observation is consistent with the arguments put forward earlier. Thus, the null hypothesis H4 (nationality) can be rejected on the basis of univariate test results for all the three income smoothing objectives.

In the cases of income from operations and net income after tax, the null hypothesis H2 (profitability) can also be rejected at a slightly above 0.05 significance level (the respective p-values are 0.0502 and 0.0036). The results in Table 1 show that companies with lower profitability tend to smooth their income more than companies with higher profitability. This relationship is expected in view of the earlier discussion.

Table 2
Univariate Test Results

A. Income from operations

	<i>t-statistic*</i>	<i>Chi-square[#]</i>	<i>p-value^a</i>
H1: Total assets (TA)	0.8406	—	0.4019
H2: Net income to TA	-1.9736	—	0.0502
H3: Industrial and commercial	—	0.1050	0.7460
Hotels and properties	—	3.7750	0.0520
H4: Nationality	—	3.9490	0.0470

B. Income before extraordinary items

	<i>t-statistic*</i>	<i>Chi-square[#]</i>	<i>p-value^a</i>
H1: Total assets (TA)	0.4430	—	0.6584
H2: Net income to TA	-1.5603	—	0.1236
H3: Industrial and commercial	—	8.7610	0.0030
Hotels and properties	—	31.5250	0.0001
H4: Nationality	—	9.5140	0.0020

C. Net income after tax

	<i>t-statistic*</i>	<i>Chi-square[#]</i>	<i>p-value^a</i>
H1: Total assets (TA)	-0.0737	—	0.9413
H2: Net income to TA	-3.0079	—	0.0036
H3: Industrial and commercial	—	19.6960	0.0001
Hotels and properties	—	40.7210	0.0001
H4: Nationality	—	8.0680	0.0050

*Test-statistic for t-test of differences.

[#]Test-statistic for chi-square test of independence.

^ap-value of t-test/chi-square test.

Note: The null hypotheses for the t-tests are as follows:

- H1: The mean total assets (size) of smoothers = The mean total assets (size) of non-smoothers.
- H2: The mean net income to total assets (profitability) of smoothers = The mean net income to total assets (profitability) of non-smoothers.

The null hypotheses for the chi-square tests are as follows:

- H3: The industry (industrial and commercial, hotels and properties, or others) and smoothing status (smoothers or non-smoothers) of companies are independent.
- H4: The nationality (Malaysian or Singaporean) and smoothing status (smoothers or non-smoothers) of companies are independent.

Table 3
Logit Analysis Results

A. Income from operations

1. Logit model results

	<i>Coefficient</i>	<i>Chi-square</i>	<i>p-value</i>
Model	—	14.096	0.0150
Intercept	-1.5609	2.4341	0.1187
H1: Total assets	0.1792	0.9268	0.3357
H2: Net income to total assets	-2.3577	1.9835	0.1590
H3: Industrial and commercial	0.3302	1.4272	0.2322
H3: Hotels and properties	0.7244	3.7175	0.0538
H4: Nationality	0.5957	7.3962	0.0065

2. Classification results (holdout accuracy rates)

Actual status	<i>Predicted status</i>		
	<i>Smoother</i>	<i>Non-smoother</i>	<i>Total</i>
Smoother	42 (56.0%)	33 (44.0%)	75
Non-smoother	25 (30.8%)	53 (67.9%)	78
Total	67	86	153
Overall accuracy rate			62.1%

B. Income before extraordinary items

1. Logit model results

	<i>Coefficient</i>	<i>Chi-square</i>	<i>p-value</i>
Model	—	55.3860	0.0001
Intercept	-3.9937	11.0980	0.0009
Operating leverage	1.3050	2.0391	0.1533
H1: Total assets	0.3351	2.6697	0.1023
H2: Net income to total assets	-0.7633	0.1964	0.6576
H3: Industrial and commercial	0.0977	0.0938	0.7594
H3: Hotels and properties	2.3741	21.3408	0.0001
H4: Nationality	1.5472	17.3088	0.0001

2. Classification results (holdout accuracy rates)

Actual status	<i>Predicted status</i>		
	<i>Smoother</i>	<i>Non-smoother</i>	<i>Total</i>
Smoother	30 (63.8%)	17 (36.2%)	47
Non-smoother	21 (19.8%)	85 (80.2%)	106
Total	51	102	153
Overall accuracy rate			75.2%

C. Net income after tax

1. Logit model results

	<i>Coefficient</i>	<i>Chi-square</i>	<i>p-value</i>
Model	—	73.1970	0.0001
Intercept	-1.4894	1.1921	0.2749
Operating leverage	-2.1225	3.1375	0.0765
H1: Total assets	0.1537	0.4006	0.5268
H2: Net income to total assets	-5.3762	7.6782	0.0056
H3: Industrial and commercial	-0.5806	3.6330	0.0566
H3: Hotels and properties	2.8895	15.5815	0.0001
H4: Nationality	1.2959	13.3258	0.0003

2. Classification results (holdout accuracy rates)

Actual status	<i>Predicted status</i>		
	<i>Smoother</i>	<i>Non-smoother</i>	<i>Total</i>
Smoother	34 (63.0%)	20 (37.0%)	54
Non-smoother	15 (15.2%)	84 (84.8%)	99
Total	49	104	153
Overall accuracy rate			77.1%

With income before extraordinary items and net income after tax as income smoothing objectives, industry is also statistically significant at a 0.01 significance level. In particular, smoothing is proportionately most common among companies in the hotels and properties sector (p -values = 0.0001 in both instances) and proportionately least common among companies in the industrial and commercial sector (p -values = 0.0030 and 0.0001, respectively). (See also Table 1.) Further, for income from operations, the industrial hypothesis for hotels and properties is significant at a slightly above 0.05 significance level (p -value = 0.0520). These findings are consistent with the existing literature and the earlier discussion. Therefore, the null hypothesis H3 (industry) can be rejected.

Overall, the univariate test results indicate that profitability (H2), industry (H3) and nationality (H4) affect the incidence of income smoothing among SES companies. However, no evidence associating company size (H1) with income smoothing is detected for any of the three income smoothing objectives (the p -values are 0.4019, 0.6584 and 0.9413, respectively). To investigate the results further in a multivariate context, logit analyses are performed.

Logit Analysis Results

The results of logit analyses are summarised in Table 3 for each income smoothing objective. In particular, the estimated model coefficients, the associated significance test results, and the holdout accuracy rates of the model are reported. The holdout accuracy rates are computed using a jackknife approach to reduce the bias of classifying the same sample data (SAS Institute, 1990).

Income from operations. The logit model for income from operations as an income smoothing objective is significant with a p -value of 0.0150, indicating a good fit. The overall holdout accuracy rate of 62.1% is considered satisfactory, given that the purpose of the model is to test the null hypotheses H1 to H4 and not to construct a model to predict the incidence of income smoothing among SES companies.

As can be seen from Table 3, at a significance level slightly above 0.05, the null hypotheses H3 (hotels and properties; p -value = 0.0538) and H4 (nationality; p -value = 0.0065) can be rejected. The signs (+/-) of the coefficients indicate that smoothers tend to come from the hotels and properties industrial sector and that they tend to be Malaysian companies. The findings are expected under the hypotheses tested in the study. The null hypotheses for size (H1) and profitability (H2) cannot be rejected at a 0.05 significance level. The respective p -values are 0.3357 and 0.1590.

Income before extraordinary items. When income before extraordinary items as an income smoothing objective is examined, the resulting logit model is significant with a p -value of 0.0001. Thus, a good fit is indicated. The overall holdout accuracy rate of 75.2% is considered adequate for the purpose of the study (see Table 3).

At a significance level of 0.01, the null hypotheses H3 (hotels and properties; p -value = 0.0001) and H4 (nationality; p -value = 0.0001) can be rejected. The signs (+/-) of the coefficients indicate that smoothers tend to be from the hotels and properties industrial sector and from Malaysia. These findings are expected under the hypotheses tested in the study; they are also consistent with the findings reported in the previous section. (For income from operations, hypotheses H3 (hotels and properties) and H4 (nationality) are significant at a 0.05 significance level.) The null hypotheses for total assets (H1) and net income to total assets (H2) cannot be rejected at a 0.05 significance level. The respective p -values are 0.1023 and 0.6576.

Net income after tax. Finally, logit analysis is performed for the case where net income after tax is the income smoothing objective. As can be seen from Table 3, the resulting logit model is significant with a p -value of 0.0001, indicating a good fit. The overall holdout accuracy rate is 77.1%, which is considered adequate for the purpose of the study.

At a significance level slightly above 0.05, all the null hypotheses except H1 (total assets) can be rejected. The respective p -values are as follows: 0.0056 for H2 (net income to total assets); 0.0566 for H3 (industrial and commercial); 0.0001 for H3 (hotels and properties); and 0.0003 for H4 (nationality). The signs (+/-) of the coefficients indicate that smoothers tend to have lower net income to total assets (i.e., lower profitability) and they tend to be Malaysian companies. Finally, smoothers tend to be from the hotels and properties sector, not from industrial and commercial. The findings are expected under the hypotheses tested in the study and are consistent with those reported earlier for income from operations and income before extraordinary items. The result for H1 (total assets) is not statistically significant with a p -value of 0.5268.

Note also that operating leverage is statistically significant at a 0.10 significance level (p -value = 0.0765). The negative coefficient indicates that companies identified as income smoothers tend to have lower operating leverage. One possible explanation is that companies with lower operating leverage have a lower proportion of fixed (sunk) costs and a corresponding higher proportion of variable (and probably 'discretionary') costs. Thus, more opportunities exist for them

to smooth their income. Another possible explanation is that, compared to high operating leverage, low operating leverage reduces the volatility of net income after tax relative to the volatility of sales. As such, the possibility of Eckel's (1981) index classifying smoothers as non-smoothers is less when operating leverage is low. Consequently, the income smoothing index is more sensitive in detecting and measuring income smoothing.

Conclusion

The objective of this study is to identify the factors associated with the incidence of income smoothing. Analysis of a sample of companies listed on the Singapore stock exchange indicates the presence of income smoothing. This is not surprising given that researchers such as Hepworth (1953), Gordon (1964), Ronen and Sadan (1981), Lambert (1984), Dye (1988), and Trueman and Titman (1988) suggest that it is logical and rational, and that strong motivations exist for managers to do it.

Descriptive statistics show that 'smoothers' tend to smooth operational income more than income before extraordinary items or net income after tax. As for the factors affecting income smoothing, apart from company size (total assets), univariate and multivariate test results largely support the alternative hypotheses put forward in the study.

First, as suggested by the literature (see, for example, Archibald, 1967 and White, 1970), the incidence of income smoothing is greater in less profitable companies. Second, it depends on the industrial sector of companies. In particular, companies in more 'risky' industries have greater opportunities and a greater predisposition to smooth their income. Finally, more Malaysian companies smooth their income than their Singaporean counterparts. This can be explained by the differences in the financial reporting quality and regulatory framework of the two countries. Interestingly, the results seem to imply that nationality is a very important factor influencing income smoothing behaviour among SES companies. Thus, income smoothing depends not only on micro and macro variables such as company size and industry, but also on more global variables such as nationality of the companies.

It is hypothesised in the study that larger companies (in terms of total assets) receive more attention from analysts and investors and more is known about them. Thus, there is less incentive for larger companies to smooth their income (see H1). However, no evidence of this alternative hypothesis can be detected in the data at a significance level of 0.10. Instead, the descriptive statistics (Table 1) and logit analysis results for income before

extraordinary items (Table 3; $p\text{-value} = 0.1023$) seem to suggest that large companies may smooth income more than small companies do. This observation is consistent with the suggestion that, in an agency setting, it is undesirable for large companies to report 'excessive' profits; hence, the motivation for large companies to smooth income exists. In the study, the results for H1 (total assets) are statistically inconclusive.

The above findings can have implications for users of financial statements and regulatory bodies. In particular, financial statement users should be aware of income smoothing and the factors affecting such behaviour when they rely on financial statements to make decisions. Specifically, users should note the influence of profitability, industry and nationality on such behaviour. Also, the findings should be useful to regulators when they decide on the extent to which income smoothing needs to be monitored and controlled. Excessive income smoothing may lead to inadequate or misleading income disclosure. Regulators should concentrate their efforts where income smoothing is most likely and most extensive.

In this concluding section, it is appropriate to highlight some potential limitations that should be considered when interpreting the results. First, not all listed (SES) companies are included in the study. In particular, companies with less than seven years of data or incomplete data are excluded. Furthermore, only companies whose data are captured by the Nanyang Technological University's financial database are used in the study. Thus, there is a possibility that the characteristics of the sample companies are significantly different from those of the excluded companies. This may mean that the findings do not reflect the population of listed companies. However, this limitation may not be serious as the sample companies comprise 42.03% of the population of listed companies in Singapore, which may be considered substantial.

Second, while Eckel's (1981) index identifies companies that artificially smooth their income, it may not identify all companies that attempt to do so. For example, when the efforts of a company are only partially successful or totally unsuccessful, Eckel's income smoothing index may not classify the company as a smoother. Further, there is a possibility that smoothers with relatively high proportions of fixed costs might be classified as non-smoothers. An attempt is made in the study to address this problem by incorporating operating leverage in some of the statistical analyses and by adding back depreciation and amortisation to operating income. For the study, Eckel's measure of income smoothing is deemed acceptable.

Third, the study may lack external validity in that it is based only on companies listed on the

Singapore stock exchange. Thus, the findings may not be applicable in other settings or situations. However, this may not necessarily be a limitation in that previous studies have always focused on companies in developed countries such as the US and UK. Hence, findings from an economically different (i.e., developing) and a culturally different (i.e., Asian) country may contribute towards the literature on income smoothing.

This study is by no means complete or comprehensive; potential avenues exist for future research. For example, future researchers may study the factors that motivate managers to smooth income (e.g., within an agency setting) or study the use by managers of various income smoothing objectives and instruments. Following the limitations highlighted earlier, future research can also look into improved ways to measure/detect income smoothing as well as investigate it in different contexts (e.g., different time periods or economic cycles, different stock exchanges, and so on).

Finally, it is hoped that this study will contribute to the existing literature on income smoothing.

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Economic and Accounting (Book) Rates of Return: Application of a Statistical Model

David Butler, Kevin Holland and Mark Tippett*

Abstract—Harcourt's (1965) classic paper has spawned a considerable literature dealing with the relationship between economic and accounting rates of return. Kay (1976), Ijiri (1979), Salamon (1982) and Kelly and Tippett (1991), for example, can be interpreted as extensions of Harcourt's seminal analysis, while Kay (1976), Salamon (1982, 1985) and Gordon and Hamer (1988) provide empirical evidence on the sustainability of basic propositions. The present paper's focus is on the latter area; we apply the statistical procedures laid down in Kelly and Tippett (1991) to about 200 British companies to assess the correspondence between the ex post accounting rate of return and the prospective economic return. The economic return is estimated using three cash flow definitions. For all three, the accounting rate of return is significantly lower than the economic return. Further tests show the economic return to be *inversely* related to the accounting rate of return, although the relationship is weak. In addition, 'large' firms tend to report lower accounting rates of return than 'small' firms, but again the relationship is weak.

Introduction

The last three decades have witnessed a rapid expansion in the number of books and articles dealing with the predictability and time series properties of accounting numbers and financial variables. Early work is typified by Little (1962) and Little and Rayner (1966) and deals with some basic time series properties of accounting earnings. More recently, the procedures laid down in these early works have been refined and extended and applied in a number of other areas.¹ Lesser known amongst these is research dealing with the time series properties of rate of return measures (Ijiri, 1979; Freeman, Ohlson and Penman, 1982; Salamon, 1982).² Foster (1986, pp. 67–68) stresses the importance of such metrics by noting that they are often used to assess relative profitability, both over time and across firms. This position has found support in the work of Ijiri (1979) and others, who show that in 'steady state', a return measure called the 'corporate recovery rate' can often provide a good indication of the internal rate of return

(IRR) a firm is likely to earn over its remaining life.³

As with all models, the validity of Ijiri's (1979) analysis hinges on a number of crucial assumptions. Salamon (1982, p. 294) summarises them in the following terms:

'The model assumes that the firm is a collection of projects that have the same useful life, same cash flow pattern, and same IRR. The collection is assembled by having the firm acquire a project at the end of each year. The project ... is different from the projects acquired in other years only with respect to scale. In particular, the model assumes that the firm has a constant rate of growth in real gross investment. ... The cash inflows (outflows) generated (required) by firm projects occur only at discrete points in time which are one year apart. ... The firm operates in an environment in which there is a constant rate of change in the level of prices.'

In questioning the reality of many of these assumptions, Kelly and Tippett (1991) use recent developments in the application of stochastic processes in the financial economics literature to develop an alternative model of firm behaviour. Their analysis is rationalised in terms of a discrete time binomial model, which, upon taking limits, produces a test of significance for the difference between an arbitrary rate of return measure and the ex ante economic return.⁴ Kelly and Tippett (1991,

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¹Foster (1986, Chapters 6–8) provides an excellent survey of this area.

²There has been a rapid growth in the literature in this area and space restrictions mean that only a cursory review can be provided here. Detailed reviews, however, are to be found in Luckett (1984) and Kelly (1994).

³Kelly and Tippett (1991, pp. 321–323) provide a more detailed discussion of this issue.

⁴The terms 'internal rate of return' and 'economic return' are used interchangeably in this paper.

pp. 325–328) demonstrated the model by using the cash flow and accounting data of five large Australian companies to assess whether the accounting rate of return (ARR) as defined by Kay (1976), Peasnell (1982) and Steele (1986) amongst others bears any correspondence to the IRR. For all but one of the companies, the ARR and the economic return appeared to have very little to do with each other. The authors were quick to note the anecdotal nature of their evidence, however, and concluded that ultimately the issue could only be resolved by much more exhaustive empirical testing.

The present paper's brief is to fill this gap and in so doing consists of six further sections. The next section briefly outlines our sample selection criteria and reports the results of an investigation into the time series properties of the ARR. The third section outlines the cash flow surrogates used by the study as the basis for estimating the economic return. Section four reviews the essential properties of the Kelly-Tippett model and discusses some important econometric issues. The fifth section describes the diagnostic tests used to assess the suitability of our modelling procedures, while section six presents our empirical results. The final section contains our summary conclusions.

Sample details and time series properties of the ARR

The sample on which our analysis is based was drawn from non-financial British companies having a continuous set of financial information on the Datastream database for the 23-year period ending 31 December 1991.⁵ There is obviously a trade-off between the objectives of maximising, on the one hand, the number of years for which accounting data is available, and therefore the robustness of the IRR estimates and, on the other, the number of companies satisfying the selection criterion. The number of years used, namely 23, was the maximum available on the Datastream service. This ensured an adequate sample both in terms of overall size, distribution across industry types, capitalised value and a variety of other financial measures. A total of 255 companies satisfied the selection criterion but, of these, 60 were excluded because of changes in their balance sheet reference date. This left a usable sample of 195 companies. Table 1 provides details of the sample's composition by industry type, the number of companies

in each industry (in brackets), average balance sheet value of total assets for the 1972/73 year, average sales for that year and the standard deviation for each industry of both balance sheet asset values and sales. Note that the sample provides good coverage under any of these measures.

Having identified the basic sample, the Datastream files were accessed to extract the (annual) ARR for each company for the 23-year period ending 1990/91. Following Freeman, Ohlson and Penman (1982, pp. 641–642), the ARR was defined as annual accounting profit divided by the average book value of shareholders' equity over the year. More formally, the numerator of the ARR was computed as:⁶

Net profit after tax, minority interests
and preference dividends (item 182)
+ Extraordinary items after tax for the
period (item 193)

while the denominator consisted of:

The average total share capital and reserves,
excluding preference capital (item 304),
based on the opening and closing
balance sheets.

The distribution of the median ARR (by year) across the 195 firms comprising our sample is charted in Figure 1. Note that over this period the ARR varies cyclically, roughly in line with variations in real economic activity.

Following Kelly and Tippett (1991, pp. 325–327), part of our study involves assessing whether the ex post ARR can be regarded as a satisfactory proxy for the economic return a corporation is likely to earn over its remaining life. The testing of this hypothesis involves making comparisons between an average ARR measured over a 'short' period of time, with an estimate of the economic return taken over a much longer period of time (Salamon, 1935, p. 500). The apparent cyclical nature of the ARR, however, points to a serious difficulty here. If the ex post ARR appears to be low (high) relative to the economic return, this may reflect nothing more than that the proxy was drawn from a period when the ARR was low (high) relative to its 'normal' or 'long-term' value (Freeman, Ohlson and Penman, 1982, p. 640). In an attempt to assess the importance of this issue, we ran the following time series regression for each of the 195 companies comprising our sample:

$$\Delta \text{ARR}_t = \alpha + \beta \text{ARR}_t + \epsilon_t$$

where $\Delta \text{ARR}_t = \text{ARR}_{t+1} - \text{ARR}_t$ is the change in the ARR over the $t = 1, 2, \dots, 21$, years of available data, α and β are parameters to be estimated

⁵As with prior work in this area, the present study suffers from a survivorship bias. While it is difficult to assess what effect this might have on our results, it is worth noting that results based on both longer periods and smaller samples have been reported in the ARR/economic return literature without this being raised as a significant issue (Freeman, Ohlson and Penman, 1982, p. 645; Salamon, 1982, p. 297; Gordon and Hamer, 1988, p. 519).

⁶The item numbers in brackets refer to the Datastream reference numbers.

Table 1
Basic Sample Properties as at the end of (for) Fiscal 1972/73

Industry	Assets		Sales	
	Average £(m)	Std deviation £(m)	Average £(m)	Std deviation £(m)
1. Building materials (15)	57.51	78.92	62.12	79.66
2. Contracting and construction (13)	38.96	46.17	61.52	67.42
3. Electricals (9)	64.92	119.75	79.30	147.58
4. Electronics (6)	6.14	4.28	8.12	4.63
5. Aerospace (4)	48.07	25.37	55.19	32.25
6. Metals and manufacturing (8)	35.25	49.44	45.28	54.79
7. Motors (10)	116.12	182.40	138.81	185.31
8. Other industrial materials (12)	23.00	20.22	24.52	21.80
9. Brewers and distillers (17)	118.78	243.20	94.71	171.99
10. Manufacturing (9)	175.98	87.18	318.50	158.43
11. Food retailing (6)	26.39	30.79	100.46	103.68
12. Health and household (6)	86.74	67.93	111.55	63.78
13. Leisure (4)	95.81	149.12	108.95	175.37
14. Media (6)	124.43	194.06	107.50	181.58
15. Packaging and paper (13)	84.08	163.45	96.33	177.56
16. Miscellaneous (2)	4.56	0.89	6.21	1.38
17. Oil and gas (5)	1655.59	1562.73	973.69	1031.37
18. Stores (14)	98.37	131.13	128.42	178.28
19. Textiles (11)	14.20	13.24	16.67	11.97
20. Business services (5)	75.21	111.96	44.06	51.98
21. Chemicals (10)	376.43	726.49	303.08	534.86
22. Conglomerates (2)	97.55	95.13	94.99	85.51
23. Transport (8)	67.70	85.76	45.94	55.22

and ϵ_t is the stochastic error term.⁷ If the ARR is generated by a random walk, then β would be zero and α measures drift (per unit time) (Cox and Miller, 1965, pp. 207–208). However, if as prior empirical research would seem to indicate, the ARR is generated by some form of mean reverting process, β would be negative and $-\alpha/\beta$ would be the ARR's long-term mean or 'normal' value (Freeman, Ohlson and Penman, 1982, pp. 641–642). The parameter β can also be interpreted as a measure of the speed with which the ARR is drawn back to its normal value (Merton, 1971, pp. 401–412).⁸

Table 2 presents results from running these regressions. The first two columns give the deciles for $\hat{\alpha}$ and its associated t-statistic. Hence, 10% of the estimated $\hat{\alpha}$'s are less than 0.0165, 20% are less than 0.0241 and so on. Similarly, 10% of the

t-statistics associated with the $\hat{\alpha}$'s are less than 0.677, 20% are less than 1.048 and so on. The third and fourth columns contain similar information relating to the estimated β coefficients. The remaining columns contain the deciles of the adjusted R^2 statistic [$R^2(\text{adj})$], the Durbin-Watson first order autocorrelation test statistic, the Breusch-Pagan heteroscedasticity test statistic, the Chow test⁹ for intertemporal stability of the regression coefficients and the Jarque-Bera test for normality of the regression residuals.¹⁰ The table indicates that about a third of the regressions returned significant Jarque-Bera statistics at the 5% level and so, for a good proportion of the regressions, we must reject the hypothesis that the residuals are normally distributed. In addition, a little over 10% of the Breusch-Pagan statistics are significant at

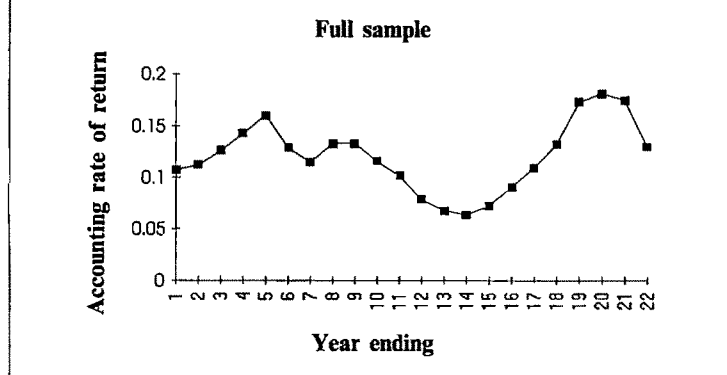
⁷Our sample consists of 23 years of balance sheet and earnings data. One year is 'lost' in calculating the first year's ARR. The use of a first differenced dependent variable accounts for the 'loss' of a second year. Hence, our regressions are based on 21 observations (per company).

⁸Factoring β out of the above equation, we have $\Delta \text{ARR} = \alpha + \beta \text{ARR} = -\beta[-\alpha/\beta - \text{ARR}]$. This equation takes the form of a 'first order' mean reversion process with $-\beta$ serving the role of the speed of adjustment coefficient and $-\alpha/\beta$ being the long-term mean. If, as would normally be expected, the long-term mean is positive, then we would also expect α to be positive.

⁹In this instance, the Chow statistic is distributed as an F variate with $v_1 = 2$ and $v_2 = 17$ degrees of freedom. Under the null hypothesis of intertemporal parameter stability, the test statistic will have 95% of its density below 3.59, a figure which is recorded at the foot of the Table. Similarly, since the t-statistics recorded in the Table have 19 degrees of freedom, 95% of their density will lie between ± 2.093 . The remaining significance levels are similarly interpreted.

¹⁰Under the null hypothesis that the regression residuals are normally distributed, the Jarque-Bera (1980) Lagrange Multiplier test statistic is asymptotically distributed as a chi-square variate with two degrees of freedom. Further details are to be found in Jarque and Bera (1980).

Figure 1
Median Accounting Rate of Return by Year 1968–1990 (N = 195)



the 5% level, suggesting the possibility of heteroscedasticity.¹¹ On the whole, however, the diagnostic tests indicate that the regression equation fits the data fairly well; there is no suggestion of autocorrelation and the Chow statistics are consistent with the hypothesis that the regression parameters are stable over time.

As suspected, the estimated regression coefficients are consistent with the hypothesis that the ARR is a mean reverting statistic. All but four of the estimated β 's in our sample of 195 companies are negative and over 50% are significantly different from zero at the 5% level. Further, all but five of the estimated α 's are positive, with 37% being significantly different from zero at the 5% level. The average $-\hat{\alpha}/\hat{\beta}$ across the 195 companies on file, which from previous analysis was shown to provide a good estimate of the 'long-term' or 'normal' ARR, is 12.51%. This statistic compares with a global average ARR (taken across all 23 years and 195 companies) of 12.71%. Hence, by either measure the 'long-term' or 'normal' ARR for the period from which our sample is drawn would appear to be around 12.6%.

As previously noted, part of our study involves assessing whether the ex post ARR, averaged over a 'short' period of time, can be regarded as a satisfactory proxy for the economic return a corporation is likely to earn over its remaining life. The exact proxy used was the ARR averaged over the four years ending in 1972 (Salamon, 1985, p. 500). Across all 195 companies, this four-year average ARR is just over 13%. While this is a little higher than the 'long-term' ARR of 12.6% implied by the time series analysis reported above, in

statistical terms the difference is not significant.¹² Furthermore, there are no significant differences between the results we obtain using the estimated long-term average ARR and the results obtained from the (ex post) average ARR.

There is a second reason for using the (ex post) average ARR as the proxy rather than the estimated long-term average ARR. The (ex post) average has the distinct advantage of ensuring that there is no overlap between the estimation and test data periods, thus eliminating potential problems associated with 'statistical overfitting' (Freeman, Ohlson and Penman, 1982, p. 650; Ou and Penman, 1989, p. 299). To accommodate this, our Datastream files were split into two sub-samples. The first consisted of the data for the five years ending in 1972/73; the second consisted of the last 18 years' data (ending in 1990/91). The ARR proxy was computed from the first sample as the simple average of the four ARRs. The cash flow figures used in the estimation of our statistical models were calculated from the second sub-sample.

Cash flow definitions

A firm's economic return is determined by equating the present value of its future cash flows with the price that must be paid to secure those cash flows. Unfortunately, there is a great deal of confusion in the literature about how a firm's cash flows ought to be calculated. Bowen, Burgstahler and Daley (1986) and Arnold, Clubb, Manson and Wearing (1991), for example, identify no less than seven definitions which, at one stage or another, have been suggested in the literature. Because of this and to assess the sensitivity of our results to the estimation method and to reveal the impact, if any,

¹¹We also ran logistic regressions for each company in the sample. It is well known that this procedure avoids problems of heteroscedasticity (Freeman, Ohlson and Penman, 1982, pp. 643–645). Results obtained were consistent with those obtained from the OLS procedures. The White (1980) adjustment also resulted in no significant changes to the t-statistics reported in Table 2.

¹²The standard normal score for the difference between the average ARR for the four years ending 1972 and the estimate of the 'long-term' ARR is not significant at any of the generally accepted levels.

Table 2
Ordinary Least Squares Regression of Change in ARR (ΔARR_t) against Accounting Rate of Return (ARR_t)

Decile %	$\Delta ARR_t = \alpha + \beta ARR_t$					Durbin Watson	Breusch Pagan	Chow	Jarque Bera
	α	$t(\alpha)$	β	$t(\beta)$	$R^2(\text{adj})$				
10	0.0165	0.677	-0.8229	-3.576	0.0214	1.36	0.02	0.12	0.35
20	0.0241	1.048	-0.6667	-3.027	0.0504	1.53	0.07	0.29	0.69
30	0.0323	1.284	-0.5688	-2.697	0.0818	1.67	0.18	0.44	1.05
40	0.0387	1.508	-0.4961	-2.471	0.1280	1.76	0.32	0.64	1.54
50	0.0451	1.746	-0.4314	-2.218	0.1647	1.84	0.51	0.82	2.71
60	0.0553	1.934	-0.3620	-1.951	0.2036	1.92	0.95	1.16	4.27
70	0.0659	2.219	-0.2946	-1.644	0.2409	2.00	1.59	1.52	7.28
80	0.0802	2.418	-0.2152	-1.334	0.2901	2.06	2.67	2.30	20.25
90	0.1020	2.885	-0.1524	-0.895	0.3757	2.15	5.11	3.47	46.15
Lower 0.05 sig		-2.093		-2.093		1.40			
Upper 0.05 sig		2.093		2.093		2.60	3.84	3.59	5.99

of allocation decisions inherent in determining accounting data, three alternative cash flow definitions were used. The definitions are based on those used by Arnold, Clubb, Manson and Wearing (1991), but modified so as to exclude cash flows to non-equity providers of capital (principally long-term debt and preference capital).¹³

The three definitions are:

- CF1 = Net profit after tax, minority interests and preference dividend (item 182) + extraordinary items after tax for the period (item 193) + depreciation (item 136) + amounts written off intangibles (item 562) + other non-cash adjustments (e.g. grants released to the profit and loss account) (item 404) + deferred tax charges (item 161).
- CF2 = CF1 – change in stocks and work in progress (item 445), and
- CF3 = CF2 – change in debtors (item 448) – change in short-term provisions (item 413) + change in creditors (item 417).

As noted previously, 195 companies were available for analysis after eliminating those which changed their accounting year end. However, Datastream did not contain sufficient information to permit calculation of the first cash flow definition for six of these companies. This meant that the sample size was reduced to 189 companies for CF1 and CF2. CF3 was calculated for 188 companies.

¹³As noted above, Arnold, Clubb, Manson and Wearing (1991) outline four additional cash flow measures. Three of these were not examined because Datastream did not contain sufficient information to permit their calculation. Results for the remaining definition are not presented here because of space limitations but are broadly in line with those contained in the text for CF1.

Finally, the cash flow figures were computed for each company for the 18-year period ending in 1990/91. As previously noted, the four-year period ending in 1972/73 was used to compute the ARR proxy.

Estimating the economic return

By applying a limiting argument to a discrete time binomial model, Kelly and Tippett (1991, pp. 323–328) model corporate cash flows by the following stochastic differential equation:

$$dC(t) = [\alpha e^{kt} + \beta C(t)] dt + dW(t) \quad (1)$$

where $C(t)$ is the level of accumulated cash flows at time t , $dC(t)$ is the instantaneous cash flow over the interval $[t, t + dt]$, α , k and β are parameters and $dW(t)$ is a 'white noise' process with variance parameter σ^2 (Hoel, Port and Stone, 1972, p. 141). If the cash flows are generated by a random walk, then β would be zero and αe^{kt} measures the systematic drift in the firm's instantaneous cash flow. However, if the cash flows are generated by some form of mean reverting process, β would be negative and $(-\alpha/\beta) e^{kt}$ can be regarded as a measure of the 'normal' level of the firm's accumulated cash flows. The parameter β then measures the speed with which the firm's accumulated cash flows return to their normal value.¹⁴

An important consideration emerges from this. The early work of Whittington (1971, p. 148) concluded '... that the relative profitability of firms

¹⁴We can restate equation (1) as $dC(t) = -\beta [(-\alpha/\beta) e^{kt} - C(t)] dt + dW(t)$. As with the ARR model, $-\beta$ is then interpreted as a speed of adjustment coefficient and $(-\alpha/\beta) e^{kt}$ as the 'normal' level of cash flows at time t . If, as would normally be expected, cash flows are positive and grow with time, then we would also expect α and k to be positive with k being in the nature of a growth rate.

regresses towards the mean, i.e. it appears that control mechanisms, such as competition, tend to eliminate both excessively high and excessively low profitability over a fairly long period. . . . Since our cash flow figures are derived from an underlying profitability figure, it might be expected that they, too, should exhibit some form of mean reverting property. In any event, it bears emphasising that the above model is flexible enough to accommodate such a possibility.

Following Kelly and Tippett (1991, p. 325), we can use the above analysis to estimate a firm's economic return. In particular, for each of the 189 companies comprising our sample, the economic return was estimated by determining the discount rate which equates the expected present value of the company's future cash flows with its share price as at the end of the 1972/73 fiscal year. Specifically, suppose we define $\int_0^\infty e^{-it} dC(t)$ as the present value of the company's future cash flows (Hirshleifer, 1970, p. 93). Substituting equation (1) for $dC(t)$ and taking expectations implies that

$$E_0 \left[\int_0^\infty e^{-it} dC(t) \right] = \frac{i\alpha}{(i-\beta)(i-k)}$$

where $E_0(\cdot)$ is the expectations operator, taken at time zero.¹⁵ Equating this expression with the company's share price and solving for i determines the economic return the firm is expected to earn over the remainder of its life.

It warrants emphasising, however, that the 'variance bounds' literature typified by LeRoy and Porter (1981), Mankiw, Romer and Shapiro (1985) and West (1988), amongst others, has purported to show that stock market prices and returns are much too volatile to accord with the simple present value analysis employed here. In an influential paper, however, Kleidon (1986, pp. 977-978) notes that '... most variance bounds tests assume stationarity of ... dividends or earnings. . . . He goes on to note that 'The cited tradition in finance for treating stock prices as non-stationary random walks goes back to at least 1934 when it was recognised "that stock prices resemble cumulations of purely random changes . . . [Working (1934); cited in Roberts (1959, p. 2)]". When explicit account is taken of the non-stationarity issue, Kleidon (1986,

p. 953) concludes that the empirical evidence is '... consistent with changes in expectations of future cash flows causing changes in stock prices'. It is precisely because of this issue that Kelly and Tippett (1991, pp. 323-325) were careful to motivate the instantaneous cash flow equation (1) in terms of a discrete time binomial model based on '... cumulations of purely random changes'. This is reflected in the solution to equation (1), namely (Kelly and Tippett, 1991, p. 325):

$$C(t) = \frac{\alpha(e^{kt} - e^{\beta t})}{k - \beta} + \int_0^t e^{-\beta(s-t)} dW(s) \quad (2)$$

which shows the firm's accumulated cash flows are normally distributed with autocovariance function $\text{Cov}[C(s), C(t)] = \sigma^2/2\beta [e^{\beta(t+s)} - e^{\beta(t-s)}]$ for $s \leq t$ (Hoel, Port and Stone, 1972, p. 144). This, in turn, implies that the variance of the firm's accumulated cash flows is non-stationary.¹⁶

To apply the above analysis, however, requires reliable estimates of the model's parameters. Unfortunately, non-stationarity in a time series can often raise complex estimation issues. In the present instance, however, Kelly and Tippett (1991, p. 328) show that it is possible to overcome this problem by taking first differences across equation (2) in which case the parameters can be estimated using the non-linear regression model:

$$\Delta C(t) = (a e^{kt})\Delta t + bC(t)\Delta t + \epsilon_t \quad (3)$$

where $\Delta C(t) = C(t + \Delta t) - C(t)$ is the cash flow over the non-infinitesimal interval $[t, t + \Delta t]$, $\beta = \log[1 + b(\Delta t)]/\Delta t$, $\alpha = a(k - \beta)\Delta t/[e^{k(\Delta t)} - e^{\beta(\Delta t)}]$ and $\sigma^2 = 2\beta \text{Var}(\epsilon_t)/[e^{2\beta(\Delta t)} - 1]$, and where $\text{Var}(\epsilon_t)$ is the variance of the residual term, ϵ_t . Additional details of the model's econometric properties are to be found in Kelly and Tippett (1991, p. 328) and the Appendix to the present work.

The estimates obtained from this model can be used to assess the ARR's relationship with the economic return. It follows from the analysis of Kelly and Tippett (1991, p. 325) that the variate:

$$z = \frac{\sqrt{2} \left[\frac{H(i - \beta)(i - k) - i\alpha}{i - k} \right]}{\sigma} \quad (4)$$

where H is the asset's time zero price and i is the economic or internal rate of return, is distributed

¹⁵Rubinstein (1976, pp. 408-412) lays down a theory through which it is possible to justify formulae like this under conditions of uncertainty. The crucial requirements are that the economy is characterised by a weak aggregation condition and that the covariance between the share's 'normalised' instantaneous cash flow and the 'representative' economic agent's marginal utility of consumption, is an exponentially declining function of time. Kelly (1994, pp. 27-30) contains a formal treatment of the connection between the Rubinstein model and the model of Kelly and Tippett (1991).

¹⁶The fact that equations (1) and (2) accommodate the possibility of mean reverting cash flows means that account is also taken of the possibility that stock market prices (which discount these cash flows) might also follow some form of mean reversion process. This helps reduce the sensitivity of our estimating procedures to the level of stock prices in our 'base' year, which it will be recalled was 1972/73.

as a standard normal variate.¹⁷ Given this, let H be a corporation's share price and suppose we approximate the economic return by the ex post ARR. Then the above statistic provides an indirect test of whether the ex post ARR is a reasonable proxy for the firm's IRR.¹⁸ Kelly and Tippett (1991, pp. 325–327) illustrate the procedures involved by applying equation (4) to a sample of five large Australian companies. They obtain z scores which are significantly different from zero for four of them. From this they conclude that for these firms '... there must be considerable doubt as to whether the ex post ARR bears any correspondence to the IRR...'. However, they also note that whether this is generally true can only be resolved by applying the analysis to a much larger sample. In the next section we summarise results of diagnostic tests that were applied to the regression equation (3) for the sample of companies described in the second section of this paper.

Model diagnostics

Using the above procedures and the maximum likelihood non-linear regression methods outlined in the Appendix and Kelly and Tippett (1991), the 18 years of cash flow data was used to estimate the model (3). For each of the three cash flow definitions, the regression file was then screened for companies where the regression procedures provided an unsatisfactory fit to the cash flow data. A regression was defined as unsatisfactory when the t -statistics associated with all three regression parameters [α , k and β] were not significantly different from zero. Companies failing this test were excluded from further analysis.¹⁹ The number of companies for which the regression procedures proved unsatisfactory varied from 32 for CF3 to 43 for CF2 and are summarised in Table 3. After eliminating these companies, the sample sizes were reduced to 146 for CF2 and 156 for CF1 and CF3, and it is on these companies that the paper's statistical analysis is based.

¹⁷Kelly and Tippett (1991, p. 325) show that an asset's present value will be asymptotically normally distributed with mean $\alpha/(i - \beta)(i - k)$ and variance $i\sigma^2/2(i - \beta)^2$. It thus follows that

$$z = \frac{H - \frac{\alpha}{(i - \beta)(i - k)}}{\sqrt{\frac{i\sigma^2}{2(i - \beta)^2}}}$$

is distributed as a unit normal variate. A little algebra yields equation (4).

¹⁸See Tippett (1990) for a direct, but unfortunately, much more complicated test.

¹⁹Lack of significance across all three regression coefficients indicates that the model (1) is probably an inappropriate characterisation of the process generating the corporation's cash flows. This is confirmed by the fact that the estimated IRR for most of these companies involved a complex root. This, of course, also meant that it was impossible to include them in any replication of the tests reported in the text.

Table 3
Sample Characteristics

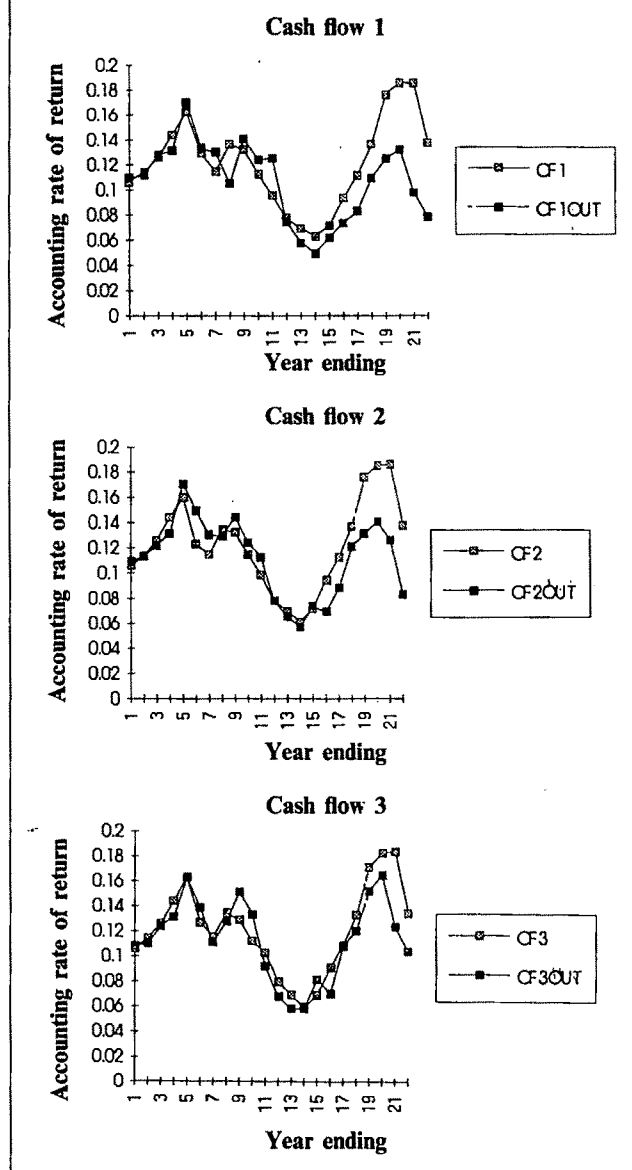
<i>Cash flow definition</i>	<i>Gross sample</i>	<i>Date change</i>	<i>Bad fit</i>	<i>Net sample</i>
1	249	60	33	156
2	249	60	43	146
3	248	60	32	156

That there are qualitative differences between the companies that were excluded from our analysis and those that were not, is clearly demonstrated by Figure 2. This figure plots the median ARR for each cash flow definition for both the companies included in our analysis and those not. Hence, the median for CF1 is based on the 156 companies included in our analysis, while the median for the outliers is based on the 33 excluded companies. The median statistics for CF2 and CF3 are similarly defined. The most striking feature about these diagrams is the difference in the time series properties between the median ARR of the companies that were included and those that were excluded from our analysis. In the early years, the median ARR for the excluded companies is not all that different from those that were included. However, towards the end of the period, the two returns drift apart quite significantly.²⁰ While it is difficult to isolate the reasons that might lie behind this, it is worth noting that around 60% of the companies excluded from our analysis are drawn from seven industries; namely, brewers and distillers (industry 9), contracting and construction (industry 2), electricals (industry 3), metals and manufacturing (industry 6), miscellaneous (industry 16), motors (industry 7) and stores (industry 18).

One of the difficulties faced by users of non-linear regression packages is that few diagnostic testing procedures are available. It is well known, for example, that the Durbin-Watson (1950, p. 410) test for first order serial correlation in a regression's residuals applies only to linear systems. We attempted to address this issue by using non-parametric tests to assess the suitability of our regression procedures. Such tests make few distributional assumptions and often their 'efficiency' approaches (or even exceeds) that of their parametric counterparts (Conover, 1980, pp. 87–90;

²⁰A simple test for the difference between the median of the companies included in our analysis and those that were excluded covering the last three years of our sample data produced chi-square statistics of 20.6, 7.3 and 3.3 with one degree of freedom for CF1, CF2 and CF3 respectively (Conover, 1980, pp. 171–176). The first two are significant at the 5% level, while the last is significant at the 10% level. A global test for the 23-year period covered by our sample produced chi-square statistics which are significant at the 5% level for the first two cash flows and at 15% for the third cash flow.

Figure 2
Median Accounting Rate of Return by Year



291–292). The exact tests chosen were Young's C (Young, 1941), which provides a test for first order autocorrelation in the residuals,²¹ the Shapiro-Wilk statistic (Conover, 1980, pp. 363–367), which provides a test for whether the residuals are normally distributed and a test for heteroscedasticity in the residuals based on the Spearman rank correlation

²¹Young's test is based on a statistic, $C = 1 - (m - 1)/2m \cdot \delta^2/s^2$, where m is the sample size and δ^2/s^2 is the von Neumann ratio test statistic for first order autocorrelation (Johnston, 1972, p. 250). As such, a test based on Young's C is equivalent to a test based on the von Neumann statistic. However, Young's C is better tabulated and so we have chosen to report autocorrelation tests based on it rather than the more traditionally used von Neumann statistic.

coefficient (Conover, 1980, pp. 252–260). Recall that the maximum likelihood estimates are generated under the assumption that the regression residuals are serially independent and identically distributed normal variates (Judge, Hill, Griffiths, Lutkepohl and Lee, 1982, p. 637), and the Young, Shapiro-Wilk and Spearman statistics provide information about whether this assumption is reasonable. These and other key statistics relating to each cash flow definition are summarised in Table 4.

The first two columns of Table 4 give the deciles for the ARR and the IRR. Hence, for the first cash flow (CF1), 10% of the ARRs are less than 0.061, 20% are less than 0.08 and so on. Column 3 gives

Table 4
Parameter Estimates and Diagnostic Statistics by Cash Flow Definition

Cash flow 1

<i>Decile%</i>	<i>ARR</i>	<i>IRR</i>	<i>z-score</i>	<i>t</i> ($\hat{\alpha}$)	<i>t</i> (\hat{k})	<i>t</i> ($\hat{\beta}$)	<i>RSQ</i>	<i>Young</i>	<i>Spearman</i>	<i>Shapiro</i>
10	0.061	0.147	-16.05	2.593	-2.304	-2.479	0.045	-0.033	-0.352	0.800
20	0.080	0.171	-9.89	3.002	-1.099	-2.025	0.099	0.087	-0.216	0.867
30	0.089	0.193	-7.48	3.367	-0.197	-1.512	0.158	0.147	-0.108	0.894
40	0.109	0.216	-5.41	3.753	0.455	-0.966	0.201	0.216	-0.051	0.913
50	0.119	0.246	-3.58	4.098	0.844	-0.687	0.266	0.258	0.071	0.922
60	0.131	0.262	-0.55	4.397	1.869	-0.439	0.353	0.322	0.148	0.932
70	0.148	0.292	2.07	5.297	3.487	-0.053	0.468	0.399	0.280	0.946
80	0.175	0.343	9.66	6.055	5.571	1.984	0.591	0.452	0.377	0.959
90	0.217	0.405	29.74	6.821	9.285	5.489	0.712	0.543	0.474	0.967

Cash flow 2

<i>Decile%</i>	<i>ARR</i>	<i>IRR</i>	<i>z-score</i>	<i>t</i> ($\hat{\alpha}$)	<i>t</i> (\hat{k})	<i>t</i> ($\hat{\beta}$)	<i>RSQ</i>	<i>Young</i>	<i>Spearman</i>	<i>Shapiro</i>
10	0.063	0.119	-8.63	1.629	0.083	-2.983	0.073	-0.135	-0.350	0.853
20	0.082	0.148	-4.14	2.442	0.913	-2.532	0.153	-0.076	-0.181	0.890
30	0.094	0.164	-1.01	2.783	2.056	-2.151	0.229	0.010	-0.084	0.913
40	0.114	0.176	3.66	3.015	2.789	-1.717	0.297	0.059	0.007	0.936
50	0.122	0.192	8.67	3.318	3.727	-1.235	0.356	0.105	0.073	0.945
60	0.140	0.213	12.59	3.568	5.389	-0.975	0.455	0.163	0.154	0.957
70	0.155	0.241	20.66	3.745	7.554	-0.616	0.551	0.213	0.271	0.965
80	0.194	0.277	30.40	4.159	11.514	-0.393	0.619	0.295	0.391	0.971
90	0.250	0.366	48.20	5.837	16.865	2.410	0.785	0.500	0.525	0.980

Cash flow 3

<i>Decile%</i>	<i>ARR</i>	<i>IRR</i>	<i>z-score</i>	<i>t</i> ($\hat{\alpha}$)	<i>t</i> (\hat{k})	<i>t</i> ($\hat{\beta}$)	<i>RSQ</i>	<i>Young</i>	<i>Spearman</i>	<i>Shapiro</i>
10	0.062	0.122	-10.21	1.682	-0.787	-3.019	0.074	-0.203	-0.327	0.858
20	0.080	0.149	-5.81	2.233	0.447	-2.466	0.139	-0.099	-0.179	0.894
30	0.091	0.171	-3.19	2.549	1.799	-2.262	0.188	-0.035	-0.086	0.917
40	0.108	0.186	1.20	2.920	2.835	-1.977	0.254	0.019	-0.016	0.933
50	0.119	0.206	5.11	3.154	3.778	-1.670	0.322	0.062	0.102	0.943
60	0.139	0.225	8.66	3.328	4.822	-1.127	0.435	0.137	0.187	0.951
70	0.155	0.261	14.71	3.623	7.263	-0.820	0.491	0.196	0.259	0.958
80	0.183	0.313	22.74	3.912	9.816	-0.458	0.576	0.267	0.373	0.966
90	0.225	0.409	39.01	4.460	13.354	1.405	0.700	0.372	0.468	0.974
Lower 0.05 sig			-1.96	-2.131	-2.131	-2.131		-0.431	-0.472	0.874
Upper 0.05 sig			1.96	2.131	2.131	2.131		0.431	0.472	0.986

the decile distribution of the standard normal (*z*) score for the difference between the ARR and IRR as computed from equation (4). Columns 4, 5 and 6 give the decile distributions of the *t*-statistics for the regression parameters α , k and β . Column 7 provides details of the distribution of the coefficient of determination while columns 8, 9 and 10 detail the distribution of Young's *C*, Spearman's rank order correlation coefficient and the Shapiro-Wilk statistic.

The Shapiro-Wilk statistic was computed from the 18 residuals generated by each regression. Under the null hypothesis that the residuals are normally distributed, the median Shapiro-Wilk statistic is 0.956, with some 80% of its density lying between 0.914 and 0.978 (Conover, 1980, pp. 468-469). From Table 4, it

will be observed that these conditions are most closely satisfied by the second (CF2) and third (CF3) cash flow definitions, and it is probably reasonable to assume that the normal assumption is satisfied in these cases. For the first (CF1) cash flow definition, however, the normality assumption is more problematical. However, even here, around 60% of the Shapiro-Wilk statistics lie within the 80% 'confidence band' and so, for the majority of the regressions, the normality assumption is probably reasonable.

The second diagnostic, Young's *C*, was also computed from the 18 residuals generated by each regression. Under the null hypothesis that there is no first order autocorrelation in the residuals, the median Young statistic is zero and some 80% of its

density will lie between ± 0.290 .²² These conditions are most closely satisfied by the second and third cash flow definitions, so much so, that it is probably fair to assume that there is no autocorrelation in these regression residuals. For the first cash flow definition, however, it must be admitted that there is some evidence of positive first order autocorrelation. Even here, around 60% of the Young statistics lie within the 80% confidence band and so, for the majority of the regressions, the assumption of no autocorrelation appears to be reasonable.

A test for heteroscedasticity in the residuals is supplied by Spearman's rank order correlation coefficient, the decile distribution of which appears in column 9 of Table 4. This is a 'Breusch-Pagan' like statistic in the sense that it is obtained by regressing the rank of the squared residual against time. If the residual's variance is correlated with time, then it will be reflected in the squared residuals and we would expect the Spearman statistic to be significantly different from zero. Under the null hypothesis that the squared residuals are uncorrelated with time, some 80% of the Spearman coefficient's density will lie between ± 0.315 . This condition is most closely satisfied by the second and third cash flows, where around 70% of the Spearman coefficients satisfy this criterion. The figure for the first cash flow is just over 60%. Hence, for the first cash flow there would appear to be some evidence of heteroscedasticity, although for the majority of the regressions, the homoscedasticity assumption would appear to be reasonable.

To summarise the results from the diagnostic tests, it would appear that for the second and third cash flow definitions, the normality assumption is reasonable and that there is little evidence of autocorrelation or heteroscedasticity. The normality assumption is more problematical for the first cash flow and there is also evidence of both first order autocorrelation and heteroscedasticity for some of the regressions. In the Appendix, however, we show that autocorrelated residuals and heteroscedasticity impact mainly on the regression t-statistics; there is very little impact on the regression parameters themselves. Finally, the decile distribution of the coefficient of determination also indicates that the Kelly-Tippett model provides a reasonable fit to the cash flow data. The median coefficient of determination ranges from 26.59% for the first cash flow to 35.57% for the second

cash flow. These statistics compare favourably with those obtained in other areas of accounting research (Lev, 1989, p. 158 et seq).

While our results would seem to indicate that the Kelly-Tippett model provides a reasonable description of the cash flow data, it must be acknowledged that our estimation procedures are not necessarily independent across firms. The importance of this stems from the fact that it is well known that the '... usual OLS standard errors ... are biased in the presence of contemporaneous correlation ...' (Froot, 1989, p. 335). Unfortunately, little is known about the effects of contemporaneous correlation on the efficiency of *non-linear* estimation procedures.²³ However, in the Appendix we show that as in the case of OLS estimation, the standard errors of non-linear regression models are obtained from the diagonals of an inverted 'information' matrix. This, in turn, implies that unless cash flows are independent across firms, it is possible that cross-sectional testing will be based on standard errors that are understated. Fortunately, the data indicated that these latter correlations were quite modest; typically of the order of 20% or less.²⁴ This, and the fact that over 80% of the regressions returned at least one significant t-statistic, must be taken as compelling evidence for the reliability of our modelling procedures.²⁵

Empirical relationships

As previously noted, the ARR was estimated as the simple average of the four accounting rates of return computed over the five years ending fiscal 1972/73 (Salamon, 1985, p. 500). The decile distributions of the ARR and the IRR are contained in columns 1 and 2 of Table 4. For all three cash flow definitions, the median ARR is less than the estimated IRR. Indeed, for the first cash flow, the median ARR is only half the IRR. These differences are reflected in the fact that for all cash flow definitions, the median z scores as computed from equation (4), are significantly different from zero at any reasonable level.

It is possible, however, that the relationship between the ARR and IRR takes a more

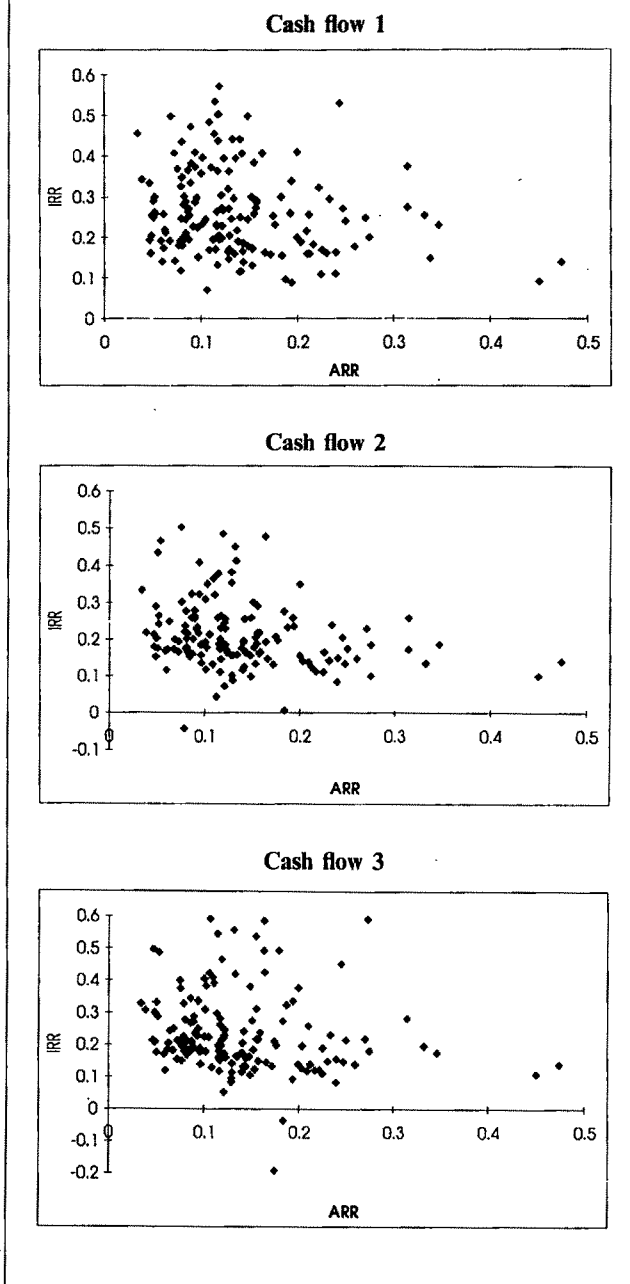
²³As far as the authors are aware, Lancaster (1959) and White (1980) are the only articles that bear on the issue and then, only tangentially.

²⁴The median product moment correlation coefficients are 0.179, 0.101 and 0.113 for CF1, CF2 and CF3 respectively.

²⁵In our case, the problem is also mitigated to some extent by the fact that about a third of the companies in the sample had 31 December balance sheet reference dates and a further 20% had 31 March reference dates. The remainder of the reference dates were uniformly spread throughout the year. See Freeman, Ohlson and Penman (1982, pp. 645-646), Bowen, Burgstahler and Daley (1986, pp. 718-724) and Arnold, Clubb, Manson and Wearing (1991, pp. 15-18) for further discussion and empirical evidence on this issue.

²²This figure is derived using the tables prepared by Pearson, Pearson and Johnson (1968, pp. 8-9) in conjunction with the procedures laid down in Young (1941, p. 297). Pagan (1974) has also proposed a test for first order autocorrelation in non-linear regressions. This test was also applied to the cash flow data used in the present study. However, it was less successful in highlighting the existence of autocorrelation and so, only the results from applying Young's test are reported here.

Figure 3
IRR against ARR



sophisticated form than that implied by the statistical methodology used so far. To investigate this issue further, we constructed scatter diagrams of the relationship between the IRR and ARR and these are contained in the three panels of Figure 3. These diagrams clearly imply the existence of a negative relationship between the IRR and the ARR, something that was confirmed by running the OLS regressions summarised in Table 5. Both

the estimated constant term (\hat{a}) and slope parameter (\hat{b}) possess significant t-statistics, and since \hat{b} is negative across all three cash flow definitions, it follows that companies with 'low' IRRs tend to have 'high' ARRs and vice versa. It is important to note, however, that the adjusted R^2 's are low and so, at best, the relationship is weak.

It is not hard, however, to understand why firms would want to conceal the existence of 'high'

Table 5
Ordinary Least Squares Regression of Economic Return (IRR) against Accounting Rate of Return (ARR)

Cash flow definition	$IRR = a + b \cdot ARR$				
	\hat{a}	$t(\hat{a})$	\hat{b}	$t(\hat{b})$	$R^2(adj)$
1	0.30225	17.064†	-0.27795	-2.4557‡	0.0314
2	0.24969	16.138†	-0.29636	-2.9861†	0.0518
3	0.27446	13.149†	-0.27892	-2.0646‡	0.0206

†Significant at 1%

‡Significant at 5%

economic returns. For as Peles and Schneller (1989, p. 528) have noted:²⁶

‘... high returns ... indicate the existence of quasi-rents, and may encourage additional firms to enter the industry, thereby depressing the original firm’s return....’

In addition, the ‘political cost theory’ of Watts and Zimmerman (1986) suggests that ‘excessive’ returns can be a catalyst for political and regulatory interference; bureaucrats and politicians attempting to secure personal gain by proposing ‘solutions’ to artificially created ‘problems’. Watts and Zimmerman (1986, p. 231) hypothesise, for example, that politicians use large reported earnings as ‘evidence’ of monopoly practices and this:

‘... affect[s] the actions of regulatory agencies. Both the Antitrust Division and the Federal Trade Commission (FTC) tend to institute actions against corporations whose shares have earned abnormal rates of return....’

In the UK, investigations of the Monopolies and Mergers Commission are undertaken by a group of specialist advisers which includes accountants, economists, lawyers and industrial experts. Accountants are said to ‘... advise on the companies themselves to determine such issues as profitability and rate of return on capital employed ...’ (Monopolies and Mergers Commission, 1992, p. 3). Given these considerations, monopolists have an incentive to manipulate their accounting profits so as to conceal the existence of economic rents. One way of achieving this is to artificially reduce the ARR, since the monopolist can then claim that the

company is earning returns appropriate to the capital employed. And the higher the IRR, the more the incentive for downward manipulation of the ARR. The following quotations demonstrate how rate of return measures have been used to deflect speculation about, or draw attention to, the possible existence of monopoly profits:

‘Shell reported earnings for 1989 at just under £4bn, a rise of 34% on the previous year ... Return on capital, which Shell said it regards as the most important indicator, was 13.7%, compared with 11.5% in the previous year.’²⁷

‘The idea that British Gas is profiteering ... should be treated as so much hot air ... British Gas would make rather more profit if it were able to invest ... its assets ... with a building society ... British Gas earns a modest return on the capital employed in its businesses. Figures for 1991 ... are estimated at 7.9% ..., in 1990, the rate of return was 5.5% and in 1989 a mere 6.2%.’²⁸

‘Of tel’s figures prove beyond doubt that in privatising BT intact, the government created a Frankenstein monster that extracts massive monopoly charges from the helpless consumer. While industry as a whole enjoys a 16.5% return on capital employed, BT’s rate of return is still 21.8% in the middle of a recession.’²⁹

²⁶Stigler (1968, pp. 142–146) makes a similar point and quotes a considerable volume of supporting empirical research. When managerial compensation depends on profit, however, there are obvious incentives for firms to report increased profits, in the short run at least. Wright (1978, p. 466) shows that increasing profits and reducing profitability are not incompatible objectives.

²⁷Investment Plans to Benefit as Shelli Jumps 34% to £3.95 billion’, *The Times*, 22 February 1990, p. 26.

²⁸Hot Air on Gas’, *The Times*, 31 May 1991, p. 27.

²⁹Time to refer BT to the MMC’, *The Times*, 2 February 1992, p. 2/3. The sensitivity corporations feel to such claims can be gauged by the response of BT’s director of corporate relations: ‘It is not the case that BT is still earning a return of 21.8% in a recession ... Based on BT’s recently reported third quarter results to December 31, 1991, the annualised rate of return is just over 19%.’ See Letters to the Editor, *The Times*, 16 February 1992, p. 2/7.

Table 6
Ordinary Least Squares Regression of ARR/IRR (R) against Firm Size

(a) Balance sheet value of assets (M): $R = a + b \cdot \log M$

Cash flow definition	\hat{a}	$t(\hat{a})$	\hat{b}	$t(\hat{b})$	$R^2(Adj)$
1	0.9974	9.379†	-0.1036	-3.5802†	0.0708
2	1.4753	3.395†	-0.1555	-1.2957	0.0047
3	1.0600	7.833†	-0.1145	-3.0962†	0.0525

(b) Sales (S): $R = a + b \cdot \log(S)$

Cash flow definition	\hat{a}	$t(\hat{a})$	\hat{b}	$t(\hat{b})$	$R^2(Adj)$
1	0.9548	8.089†	-0.0846	-2.7710†	0.0413
2	1.2851	2.733†	-0.0909	-0.7323	-0.0032
3	1.0151	6.828†	-0.0944	-2.4345†	0.0308

†Significant at 1%

‡Significant at 5%

Using evidence from the economics literature, Watts and Zimmerman (1986, p. 235) also note that '... large firms are more politically sensitive than small firms and, therefore, face differential incentives in their choice of accounting procedures'. This has become known as the 'size hypothesis' and posits that managers of 'large' firms are likely '... to choose earnings reducing accounting procedures'. We tested this hypothesis by regressing the ratio of the ARR to the IRR against two size measures. The first was the logarithm of the balance sheet value of the firm's assets for the fiscal year ending 1972/73; the second was the logarithm of the book value of sales during the 1972/1973 fiscal year (Zmijewski and Hagerman, 1981).³⁰ By either measure, however, the relationship is rather weak, something that can be gauged from Table 6. The regressions reported in this table return significant coefficients on the size variable for the first and third cash flows only. The second cash flow returns an insignificant size coefficient (although of the right sign) and the adjusted R^2 s across all three cash flows are small. Nonetheless, it is still fair to say that, for given IRR, 'larger' firms have a tendency to report lower ARR than 'smaller' firms, a result that is consistent with the size hypothesis.

Summary and conclusions

Accounting rate of return measures are being increasingly applied by financial analysts and government policy advisers to assess the effectiveness of corporate takeovers, to isolate instances of

restrictive trade practices, for price setting by government business enterprises and in public sector cost-benefit analyses (Kelly and Tippet, 1991, p. 321). Despite this, relatively little is known about the ARR's ability to predict future profitability; even less dealing with the extent of its manipulation by corporate managers. The present work provides the first exhaustive empirical examination of both these issues. The empirical evidence indicates that, for the period examined:

- the ARR itself appears to follow some form of mean reversion process;
- on average, the IRR is significantly greater than the ex post ARR;
- on average, the ex post ARR is inversely related to the IRR, although only weakly so; and
- for given IRR, large firms are more likely to report lower ARR than small firms. However, again the relationship is relatively weak.

As with most empirical work conducted in the accounting discipline, all our testing procedures are the outcomes of joint hypotheses. The IRR, for example, is determined by fitting a continuous time stochastic process to the observed cash flows. If the model is misspecified, then doubt arises as to the reliability of the estimated IRR. We attempted to control for this by subjecting our regressions to a comprehensive set of diagnostic tests, adopting 1972/73 as a 'test date' and using the actual cash flows over the ensuing 18 years to fit our models. Furthermore, companies were excluded from our analyses if there was evidence that the model did not represent a good description of the data. Opinions also vary as to the appropriate definition of cash flow (Stark, 1989). We attempted to control for this by basing our tests on three definitions of cash flow. The results obtained are largely

³⁰We here follow Salamon (1985, pp. 499-503) and others who, in an ARR/economic return framework, also use total balance sheet value of assets as a proxy for firm size. Interestingly, even though Salamon's regressions are set in a slightly different context, his results are very similar to ours.

insensitive to the definition used, although this does represent a potential area for future research.

Our results have several policy implications. One of the more important stems from the fact that, by itself, the ex post ARR appears to be a very poor surrogate for the IRR. Hence, its use as an allocational instrument would appear to be fraught with danger, so much so that in general, we would agree with Harcourt (1965, p. 80) that 'Any "man of words" ... who compares rates of profit ... and draws inferences from their magnitudes as to the relative profitability of investments ... does so at his own peril.' In the very least, those who employ the ARR as a statistic through which to assess economic efficiency and/or the potential for economic rents, would be well advised to do so with an eye to both the company's size and the relative level of the ARR.

While our empirical results indicate that the ARR follows a stationary elastic random walk, a useful area for future research is investigating the temporal stability of the IRR. The limited financial time series available on the Datastream system prevented this issue being investigated in the present paper. However, the ESRC Data Archive used by Arnold, Clubb, Manson and Wearing (1991) contains financial information on a large number of companies going back to 1948. This would appear to be a useful data source through which to investigate this issue further, for British companies at least.

Statistical Appendix

The likelihood function for the regression (3) is defined by Judge, Hill, Griffiths, Lutkepohl and Lee (1982, p. 637):

$$L(a, k, b, \sigma^2) = \frac{1}{\{\sqrt{2\pi\sigma^2}\}^T} \times \exp\left[-\sum_{t=1}^T \frac{(y_t - a e^{kt} - bx_t)^2}{2\sigma^2}\right]$$

where $x_t = C(t)$ is the level of accumulated cash flows at time t and $y_t = \Delta C(t) = C(t + \Delta t) - C(t)$ is the cash flow over the interval $[t, t + \Delta t]$. The log-likelihood function is:

$$\begin{aligned} \text{Log}[L(a, k, b, \sigma^2)] &= -\frac{T}{2} \log(2\pi\sigma^2) \\ &\quad - \frac{1}{2\sigma^2} \sum_{t=1}^T (y_t - a e^{kt} - bx_t)^2 \end{aligned}$$

Determining the stationary points, we have:

$$\frac{\partial \log L}{\partial a} = \frac{1}{\sigma^2} \sum_{t=1}^T e^{kt} (y_t - a e^{kt} - bx_t) = 0 \quad (\text{A1})$$

$$\frac{\partial \log L}{\partial k} = \frac{1}{\sigma^2} \sum_{t=1}^T a e^{kt} (y_t - a e^{kt} - bx_t) = 0 \quad (\text{A2})$$

$$\frac{\partial \log L}{\partial b} = \frac{1}{\sigma^2} \sum_{t=1}^T x_t (y_t - a e^{kt} - bx_t) = 0 \quad (\text{A3})$$

$$\begin{aligned} \frac{\partial \log L}{\partial \sigma^2} &= -\frac{T}{2\sigma^2} \\ &\quad + \frac{1}{2\sigma^4} \sum_{t=1}^T (y_t - a e^{kt} - bx_t)^2 = 0 \quad (\text{A4}) \end{aligned}$$

From the last equation, the maximum likelihood estimate of σ^2 is:

$$\hat{\sigma}^2 = \frac{1}{T} \sum_{t=1}^T (y_t - a e^{kt} - bx_t)^2$$

From equations (A1) and (A3), the maximum likelihood estimates for a and b are given by:

$$\begin{aligned} \hat{a} &= \frac{\sum_{t=1}^T y_t e^{kt} \sum_{t=1}^T x_t^2 - \sum_{t=1}^T x_t y_t \sum_{t=1}^T x_t e^{kt}}{\sum_{t=1}^T e^{2kt} \sum_{t=1}^T x_t^2 - \left[\sum_{t=1}^T x_t e^{kt} \right]^2} \\ \hat{a} &= a + \frac{\sum_{t=1}^T \epsilon_t e^{kt} \sum_{t=1}^T x_t^2 - \sum_{t=1}^T x_t \epsilon_t \sum_{t=1}^T x_t e^{kt}}{\sum_{t=1}^T e^{2kt} \sum_{t=1}^T x_t^2 - \left[\sum_{t=1}^T x_t e^{kt} \right]^2} \\ \hat{b} &= \frac{\sum_{t=1}^T e^{2kt} \sum_{t=1}^T x_t y_t - \sum_{t=1}^T y_t e^{kt} \sum_{t=1}^T x_t e^{kt}}{\sum_{t=1}^T e^{2kt} \sum_{t=1}^T x_t^2 - \left[\sum_{t=1}^T x_t e^{kt} \right]^2} \\ \hat{b} &= b + \frac{\sum_{t=1}^T e^{2kt} \sum_{t=1}^T x_t \epsilon_t - \sum_{t=1}^T \epsilon_t e^{kt} \sum_{t=1}^T x_t e^{kt}}{\sum_{t=1}^T e^{2kt} \sum_{t=1}^T x_t^2 - \left[\sum_{t=1}^T x_t e^{kt} \right]^2} \end{aligned}$$

where $\epsilon_t = y_t - a e^{kt} - bx_t$. Using these results in conjunction with equation (A2) shows that the maximum likelihood estimate of k is implicitly defined by:

$$(a - \hat{a}) \sum_{t=1}^T t e^{2kt} + (b - \hat{b}) \sum_{t=1}^T t x_t e^{kt} + \sum_{t=1}^T t \epsilon_t e^{kt} = 0$$

an equation that must be solved numerically (Judge, Hill, Griffiths, Lutkepohl and Lee, 1982, pp. 643-652). Note also, since $E(\epsilon_t) = 0$ for all t (Kelly and Tippett, 1991, p. 328), it follows immediately that the maximum likelihood estimators, \hat{a} , \hat{k} and \hat{b} , provide unbiased estimates of the population parameters, a , k and b .

The information matrix is determined by taking expectations across the Hessian, H , where (Apostol, 1969, p. 308):

$$H = \begin{bmatrix} \frac{\partial^2 \log L}{\partial a^2} & \frac{\partial^2 \log L}{\partial a \partial k} & \frac{\partial^2 \log L}{\partial a \partial b} & \frac{\partial^2 \log L}{\partial a \partial \sigma^2} \\ \frac{\partial^2 \log L}{\partial k \partial a} & \frac{\partial^2 \log L}{\partial k^2} & \frac{\partial^2 \log L}{\partial k \partial b} & \frac{\partial^2 \log L}{\partial k \partial \sigma^2} \\ \frac{\partial^2 \log L}{\partial b \partial a} & \frac{\partial^2 \log L}{\partial b \partial k} & \frac{\partial^2 \log L}{\partial b^2} & \frac{\partial^2 \log L}{\partial b \partial \sigma^2} \\ \frac{\partial^2 \log L}{\partial \sigma^2 \partial a} & \frac{\partial^2 \log L}{\partial \sigma^2 \partial k} & \frac{\partial^2 \log L}{\partial \sigma^2 \partial b} & \frac{\partial^2 \log L}{\partial (\sigma^2)^2} \end{bmatrix}$$

and multiplying by -1 . Hence, in this instance, the information matrix is given by (Judge, Hill, Griffiths, Lutkepohl and Lee, 1982, pp. 643–652):

$$-E(H) = \frac{1}{\sigma^2} \times \begin{bmatrix} \sum_{t=1}^T e^{2kt} & a \sum_{t=1}^T t e^{2kt} & \sum_{t=1}^T x_t e^{kt} & 0 \\ a \sum_{t=1}^T t e^{2kt} & a^2 \sum_{t=1}^T t^2 e^{2kt} & a \sum_{t=1}^T t x_t e^{kt} & 0 \\ \sum_{t=1}^T x_t e^{kt} & a \sum_{t=1}^T t x_t e^{kt} & \sum_{t=1}^T x_t^2 & 0 \\ 0 & 0 & 0 & \frac{T}{2\sigma^2} \end{bmatrix}$$

where $E(\cdot)$ is the expectations operator. If we take the inverse of the information matrix and replace a , k and b by their maximum likelihood estimators, \hat{a} , \hat{k} and \hat{b} , then the diagonal elements of the inverse, which we denote by h_{aa} , h_{kk} and h_{bb} , give the approximate standard errors of the maximum likelihood estimators. Under the null hypothesis that a , k and b are all zero, we then have that $\hat{a}/\sqrt{h_{aa}}$, $\hat{k}/\sqrt{h_{kk}}$ and $\hat{b}/\sqrt{h_{bb}}$ will be distributed, approximately, as t variates with $T - 3$ degrees of freedom (Judge, Hill, Griffiths, Lutkepohl and Lee, 1982, p. 657).

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European Rule-making in Accounting: The Seventh Directive as a Case Study

Graham Diggle and Christopher Nobes*

Abstract—This paper analyses EC rule-making, using the Seventh Directive as a case study. Three stages of a Directive's life are identified, with different key players taking the lead. The paper analyses the evolution of the Seventh Directive up to its adoption in 1983, looking at 19 key features. The adopted Directive is close to previous UK consolidation practices, but investigation shows that, from its origins in the late 1960s to the published drafts of the late 1970s, it showed clear German parentage. The coalition of forces leading to the major changes from German to UK practices is examined.

Introduction

The Seventh Directive on company law, concerning consolidated accounts, was adopted by the EC¹ Council in 1983, after many preceding drafts (see Table 1 for detailed references). The purpose of this paper is to propose a framework for understanding the setting of Directives, to analyse the evolution of the Seventh Directive and to suggest why, in this case, particular national influences seem to have dominated. The paper does not in general follow the Directive into subsequent member state laws. This is a large and different task, which has been carried out in detail by the *Fédération des Experts Comptables Européens* (FEE) (1993).

The background to the Seventh Directive is that the Fourth Directive (on annual accounts of individual companies) had been adopted in 1978. Nobes (1983) traces its development, noting particularly the influences from the German Public Companies Act (*Aktiengesetz*) of 1965. The Elmendorff Committee, which had completed the *avant projet* for the Fourth Directive in 1968,

delivered² a memorandum on group accounting to the EC Commission in 1970. Just as the *Aktiengesetz* (AktG) stamped much of the Fourth Directive with its character, one would expect to see substantial influence of German legislation in the Seventh Directive: Dr. Elmendorff came from Germany, which had the EC's most developed company law at the time; and the UK was not then a member of the EC. However, a reading of the eventual Seventh Directive does not give the impression of German origins. One would rather have the impression of Anglo-Saxon³ sources for most of its provisions.

This paper first examines rule-making in accounting, considering EC Directives in particular. The evolution of the Seventh Directive is then used as a case study. Finally, conclusions are offered about the nature and effects of the forces operating on the rule-making system.

Rule-making in accounting

A number of papers have examined the process of national standard-setting. For example, Watts and Zimmerman (1978) examine lobbying behaviour in a US context (and that paper prompts many reactions); Mumford (1979) notes a cycle in the degree of interest in and the solutions proposed for inflation accounting in the UK; Hope and Briggs (1982) and Hope and Gray (1982) examine UK policy-making in two controversial areas; Laughlin and Puxty (1983) explore the politics of

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¹EC is used in this paper to mean 'European Communities'. Despite the fact that the EC became a constituent part of the European Union in 1993, the programme of Directives and such organs as the Commission remain EC not pan-EU matters.

²This was confirmed to the authors on 1.3.1993 by Herr Horst Kaminski of the Institut der Wirtschaftsprüfer, who had been secretary to the Elmendorff Committee. For more details on the Committee, see Nobes (1993).

³'Anglo-Saxon' is used here as a label for countries where accounting has traditionally been seen as a professional (not a governmental) field, where fairness is the objective, where tax rules are less influential, where conservatism is constrained by matching, where the pressures for disclosure overcome secrecy, where consolidation has a long history. Approximately, this means English-speaking countries, with a few others, such as the Netherlands and Denmark. The expression 'continental' is used here to denote the alternative system.

Table 1
Chronology

1965	Aktiengesetz
1968	Elmendorff <i>avant projet</i> of the Fourth Directive
1969	Publizitätsgesetz
1970/71	Elmendorff memorandum on consolidated accounts as draft of additions to Fourth Directive (XIV/533/71)
1971	First draft of the Fourth Directive
1973	UK, Ireland and Denmark join the EC
1973	Commission's note on consolidation (XI/669/73)
1974	Second draft of Fourth Directive
1974	Groupe d'Etudes comment on Commission's 1973 note (GEEC-6DSA-17774)
1976	First draft of Seventh Directive ^a
1977	Comments by Economic and Social Committee on draft Seventh Directive ^b
1978	European Parliament comments on draft Seventh Directive ^c
1978	Fourth Directive adopted
1978	Second draft of Seventh Directive ^d (issued in January 1979)
1983	Seventh Directive adopted ^e

References

^aBulletin of the European Communities, Supplement 9/76.

^bOfficial Journal of the European Communities, 75, 26.3.1977.

^cOfficial Journal of the European Communities, 163, 10.7.1978

^dCOM (78) 703 final.

^eOfficial Journal of the European Communities, 18 July 1983 (DJ, 1983, L193).

standard-setting; Nobes (1992) examines the political forces in the case of the UK goodwill debate. There has also been some analysis of the process of *international* standard-setting (e.g. Wallace, 1990). However, little seems to have been written about the forces at work in accounting rule-making at the European Community level.

Laughlin and Puxty (1983) note that some writers believe that accounting rule-making is or should be a technical activity and others believe that it is or should be a political activity. In the context of the EC's harmonisation programme, it is particularly obvious that political pressures are at work, given that the final negotiations on Directives are conducted by representatives of the governments of member states. Furthermore, there has never been any pretence that a coherent conceptual framework should be used in this context or that one is even implicit. Nevertheless, particularly in the drafting stages, lawyers and accountants are heavily involved, and the Directives have technical as well as political input.

Hope and Gray (1982) examine the literature relating to the modelling of the political decision-making process. They suggest that one might begin with Dahl's (1961) pluralist approach in which 'an attempt is made to study specific outcomes in order to determine who . . . prevails in decision-making' (Polsby, 1963, p. 113). They note that Lukes (1974) criticises this as one-dimensional in that it leaves out the ways in which power can be used to ensure that the potential issues are not decided or not even considered. However, Hope and Gray (p. 536) conclude that, for analysis of an accounting issue that has been settled after observable conflicts on

key issues, the one-dimensional pluralist approach is the most suitable. Following these ideas, the interested parties, the key issues and the eventual decisions are identified in order to illuminate the rule-making process in the case of the Seventh Directive.

The various stages of the Seventh Directive's progress can be charted:

Stage I: Avant Projet

As has been mentioned, a memorandum on the subject of EC rules on consolidation was prepared in 1970 by a committee of professional accountants, chaired by a German. At that date, there were only six members of the EC (see the dates in Table 2). A version of this memorandum was issued by the Commission in 1971 in the context of the recently published first draft of the Fourth Directive (see Table 1 for chronology and references). The memorandum was presented in terms of new draft Articles 50 to 57 to be added to the Fourth Directive to cover group accounting. This had several German features (to be explained further later):

- (i) definition of the group based on central control;
- (ii) requirement to comply with the provisions of the law but no requirement to give a true and fair view;
- (iii) uniform formats;
- (iv) the group accounts should maintain the valuation bases of the constituent individual accounts;

Table 2
Members of the EC, with Dates of Joining

<i>Anglo-Saxon* accounting</i>	<i>Continental* accounting</i>
Netherlands (1957)	France (1957)
UK (1973)	W. Germany (1957)
Ireland (1973)	Italy (1957)
Denmark (1973)	Belgium (1957)
	Luxembourg (1957)
	Greece (1980)
	Spain (1986)
	Portugal (1986)

*see footnote 3

- (v) no goodwill to be recognised;
- (vi) no consolidation of associates or joint ventures.

Following this, in 1973, the Commission produced a note on the co-ordination of laws on consolidation, proposing a Directive on the subject. The Groupe d'Etudes (a body representing EC professional accountants, which had its origins in the Elmendorff Committee) commented on this in 1974 (again, see Table 1 for references). By this time, the EC had been enlarged by the accession of the UK, Ireland and Denmark.

Given that EC countries might be seen as divided into two quite different groups (see Table 2) with respect to accounting (e.g. Nair and Frank, 1980; Nobes, 1992), one might expect the consensus of professional accountants in the EC to have changed from 1970 to 1974 as a result of the influx of 'Anglo-Saxon' countries in 1973. Indeed, the Group d'Etudes in its 1974 comments made several Anglo-Saxon suggestions:

- (i) the Directive should be as general as possible and only lay down basic rules, leaving the details for national and international accounting organisations (one notes that the International Accounting Standards Committee had been formed in 1973);
- (ii) the objective of the consolidated accounts should be to give a true and fair view;
- (iii) consolidation should be based on ownership of more than 50% of voting rights;
- (iv) the possibility of excluding dissimilar subsidiaries;
- (v) uniform group accounting policies;
- (vi) goodwill should be recognised;
- (vii) permission to use the equity method for associated companies and proportional consolidation for joint ventures.

This remarkable change in the consensus professional view needs further explanation, which is attempted in the concluding section of this paper.

Stage II: Published Drafts of the Directive

The second main element of the process is the published drafts of a Directive. In the case of the

Seventh Directive, there were drafts in 1976 and 1978. The drafting is controlled by Commission staff, predominantly lawyers from codified law countries.⁴ This would lead one to expect a sympathy with the approach of German law, which was so evident in the Fourth Directive (Nobes, 1983). As the paper will show, the 1976 and 1978 drafts were indeed close to the consolidation provisions of the *Aktiengesetz* and largely ignored the Anglo-Saxon suggestions of the 1974 Groupe d'Etudes paper.

Stage III: Government Negotiations

The final stage in the evolution of a Directive is the negotiation in the committees of the Council of Ministers. Here full rein can be given to political pressures. One would expect to see the effects of nationalism, lobbying by preparers of accounts, concerns by governments over tax revenues and competitiveness, etc. As will be shown, in the case of the Seventh Directive, the really major changes from German practices occurred at this stage (i.e. after 1978). To some extent, as usual, the addition of options enabled international agreement, but there was also a coalition of forces in favour of movement towards Anglo-Saxon accounting.

Plan of the Argument Below

Before drawing conclusions on the political processes at work, this paper examines the evolution of the Directive in 19 major areas (see Appendix 1) under five main headings:

- Scope of consolidation
- Preparation of consolidated accounts
- Consolidation methods
- Goodwill
- Size exemptions

In general, from now on, three documents are considered: the AktG of 1965, the First Draft of 1976 and the adopted Directive of 1983. Another

⁴For most of this period, Hermann Niessen was in charge of company law. More recently, Gisbert Wolff has succeeded him. Both are German lawyers. Their subordinate, Karel van Hulle (now head of accounting), is a Belgian lawyer.

document of some relevance is the amended proposal of 1978, which was prepared by the Commission after the content of the Fourth Directive was settled and after consideration of the First Draft of the Seventh Directive by the Economic and Social Committee and the European Parliament (for details, see Vangermeersch, 1985). The 1978 amendments (see Appendix 2) are referred to below where appropriate. Table 1's chronology also covers these documents.

Scope of consolidation

The AktG had required consolidated accounts to be prepared, but the scope of group accounting was very different from that envisaged by the EC legislation. Under the AktG (§329), only groups with AGs and KGaAs as parent companies had to prepare consolidated accounts; foreign subsidiaries could be excluded from consolidation; and no reference was made to associated companies (with the implication from §153 AktG that these were to be carried in the group accounts at historical cost). The first of these issues (i.e. who must prepare consolidated accounts) saw an expansion in the Implementation Act for the AktG⁵ by the inclusion of GmbH companies with AG or KGaA subsidiaries. Also, the *Publizitätsgesetz* (PublG) of 1969 extended the requirements of the AktG to all groups, independent of legal form, that were above certain size criteria.⁶

The first eight Articles of the First Draft (Supplement 9/76 Group Accounts: Proposal for a Seventh Directive) announce a still broader scope. Consolidated accounts, according to this First Draft, are to be prepared wherever a group *contains* a GmbH, an AG or a KGaA (or equivalent companies, e.g. UK public or private limited companies) whether as a parent or a subsidiary, and all group undertakings are to be consolidated regardless of their domicile (First Draft, Article 6 (1) (a) and (b)). Anti-avoidance is one of the motivations at work here: it would be all too easy to circumvent the purpose of the Directive by placing an unincorporated enterprise at the head of the group (Supplement 9/76, p. 23). Eventually there is an option to narrow this scope to groups with parents of the relevant legal form—as will be made clear below.

Definitions of Parent

The definitions of parent and subsidiary company that had been used in member states appeared to fall into two types. The Explanatory

Memorandum (Supplement 9/76, p. 20) accompanying the First Draft divides them into:

- (i) A very general definition that rests on the idea of a group of legally independent units which operate as a single economic unit. (It is significant that this type is described as pertaining in one member state, which is not named.)
- (ii) A much more concrete and precise kind of definition, e.g. ownership of the majority of shares or control of a majority of the voting rights.

The first of the two cases is illustrated by the AktG, under which the evidence of uniform direction (*'einheitliche Leitung'*) was the criterion for whether consolidated accounts were prepared or not:

If the combine [*sic*] enterprises of a combine are under the uniform direction of a stock corporation . . . the board of management of the head association . . . shall prepare . . . a consolidated balance sheet and a consolidated profit and loss statement . . . (AktG §329, translation: Mueller and Galbraith, 1976).

The AktG (§§16–18) contains several criteria for determining the existence of uniform direction, including (a) the existence of a control contract, (b) integration of one company into the other,⁷ or (c) (rebuttably) majority ownership of the shares (not the voting rights).

In the Explanatory Memorandum quoted above, the EC authors make it plain that a choice has to be made between the two types of group definition: the former (i.e. (i) above) has the advantage of greater flexibility and it reaches to the heart of the idea of the group. It is selected for the First Draft.

Therefore the Commission developed, in these early stages, a general and comprehensive definition of the group. It did so by stating what a subsidiary is (one which may be subject to the controlling influence of another—Art. (2)(1)), and that this relationship may be presumed in certain circumstances (ownership of the majority of subscribed capital, control of the majority of voting rights, or the power to appoint the majority of the board of directors). However, as in the AktG, the touchstone of the definition of the group is 'uniform direction'. The exercise of uniform direction over two or more undertakings defines them as a group. A parent-subsidiary relationship as described above allows us to presume uniform direction, but uniform direction may exist even where there is no evidence of the criteria for a parent-subsidiary relationship.

⁵§28 of the *Einführungsgesetz zum AktG*.

⁶Undertakings coming above two of the three criteria: balance sheet total of DM 125 m, sales of DM 250 m and over 5,000 employees.

⁷The AktG §18(1) says *'eingegliedert ist'*.

The wording '*einheitliche Leitung*' also appears in the German version of Articles 3 and 4 of the First Draft and is used in the commentary to the draft (Supplement 9/76, p. 21). As noted, it is its flexibility that commends this definition to the EC legislators; a single test which excludes majority shareholdings where no control is intended, but includes minority shareholdings where actual control is exercised. By contrast, a legalistic definition of all specific circumstances under which a group would be held to exist would also have the disadvantage of requiring precise circumstances for exceptions, which can lead to abuse as the authors of the First Draft point out (Supplement 9/76, p. 21).

In the final version of the Seventh Directive (hereafter called 'the Directive'), the Commission seems to have made an about-face on this issue, notwithstanding their earlier defence of the general and flexible clause. Article 1 of the final version gives a series of definitions of the narrow, legalistic type rejected earlier; a majority of voting rights (Art. 1(1)(a)); the right to appoint or remove the majority of the board (Art. 1(1)(b)); and control of a company through a contractual agreement (Art. 1(1)(c)). This necessitates the allowing of a number of exceptions (Art. 13; see later). In addition, 'and pending subsequent co-ordination', actual exercise of a dominant influence or the management of two or more companies on a unified basis may be grounds for requiring consolidated accounts if member states so wish (Art. 1(2)(b)). Far from setting the tenor of this aspect of the law, the German concept of the group has been relegated to an option that is subject to future revision.

Legal Form of Parent

On the issue of the legal form of the parent, the Directive (Art. 4(2)) allows a member state to choose whether to require consolidation if (i) the parent is a limited company (AG, KGaA or GmbH, in the case of Germany) or (ii) the group contains such a company. The former was (and is) the British position. The latter had been the German and the First Draft's position (Art. 6(1)(a)).

No Parent

A further case is where there is no parent undertaking at all: two or more formally unconnected undertakings may be managed on a unified basis as a result of legal arrangements or overlapping management. The AktG (§329) refers to group undertakings under unified management. However, according to the AktG (§18(2)), *einheitliche Leitung* could exist without a parent. The resulting group would be called a '*Gleichordnungskonzern*'.

Similarly, the First Draft (Arts. 4(1) and 7(1)) requires the preparation of group accounts by any limited company in such a case: undertakings that

do not stand in a parent-subsidiary relationship to one another also form a group if they are under unified management. This case of the 'horizontal group' is specifically mentioned in the commentary (Explanatory Memorandum, p. 22). The Directive (Art. 12) allows a member state to require this 'horizontal' consolidation, presumably for the protection of lenders or employees in the 'group'.

Sub-group Consolidation

Another topic where German origins may be detected is 'sub-group consolidation'. The AktG (§330(1)) requires AG and KGaA parents to produce group accounts even if they are themselves subsidiaries. However, there is an exemption for those sub-groups included in a higher consolidation using German law (even if the higher consolidation is performed by an ultimate parent outside Germany).⁸ In effect, this meant that sub-group consolidation was not common because few AGs or KGaAs were subsidiaries of parents falling outside of the AktG or PublG.⁹ Likewise, the First Draft (Art. 6(2)(a)) requires all companies of the relevant legal form¹⁰ which are parents to prepare accounts for their sub-group. Article 6(2)(b) also requires partial consolidation where the ultimate parent company has its domicile outside the EC, and relates to all EC-domiciled parents at the top of their 'family trees' within the EC.

The First Draft would have had an effect dramatically wider than that of the AktG. This is because the First Draft has no sub-group exemptions and because it extends the consolidation requirement to all sub-groups headed by all types of limited company (e.g. in the German context, to GmbHs which are the vast majority¹¹ of limited companies).

There seems to be no German or British precedent for this. The EC Commission justified these demands as being necessary for the protection of all interest groups connected with the subsidiary companies:

Why, in other cases, is the drawing up of consolidated accounts for a sub-group still thought necessary when consolidated accounts are already available for the group as a whole? The Commission considers that sub-group accounts play a useful part in

⁸Any such foreign group accounts must be published in the *Bundesanzeiger* and audited by a Wirtschaftsprüfer (§330(2)).

⁹There were only about 2,000 AGs and very few KGaAs in 1983. Very large GmbHs came under the rules of the *Publizitätsgesetz* of 1969, which approximately applied AktG rules. There was a large incentive for subsidiaries to avoid audit and publication rules by being GmbHs.

¹⁰The Article also requires other (non limited-company) parents to prepare sub-group accounts if the group includes a limited company, but only if the sub-group is not included in a higher consolidation.

¹¹There were about 260,000 GmbHs in 1983.

supplementing the information already given in the group accounts and add to the protection of the various parties having an interest in dependent group companies required to draw up such accounts. The shareholders and the creditors obtain a better view of their company's position ... This information cannot be evaluated without these other two documents. The situation might arise, for example, where the sub-group accounts showed a profit while the group accounts showed a loss. Both sets of information are important for shareholders in dependent group companies (Supplement 9/76, pp. 23, 24).

The rationale is extended to the protection of other interest groups (including regional or state interests in the case of some important subsidiary groups) and the importance of the principle is underlined to the extent that no exceptions to this rule are envisaged. One could also detect a mistrust of preparers in the comment:

There is some danger of group accounts, and in particular those of large groups with a large number of operations in different countries, becoming a jumble in which a great deal of important information is lost (Supplement 9/76, p. 24).

In the final version of the Directive, the scope clause (Article 1) continues to include all EC-domiciled parent companies—a definition that would include parents which are themselves subsidiaries of other companies. However, the full force of this began to be diluted in the 1978 amended proposal by adding exemptions (see Appendix 2). In the final Directive, exemptions from the preparation of group accounts must in general¹² be made available to subsidiary companies that are wholly or 90% owned by parents domiciled in the EC (Article 7). For other subsidiary companies, sub-group accounts can be dispensed with so long as these are not requested by the shareholders (Article 8). As a member state option, subsidiaries of non-EC parents may also be exempted, provided these prepare accounts in conformity with the provisions of the Seventh Directive or are equivalent to such accounts (Seventh Directive, Article 11), whatever 'equivalent' may eventually be held to mean (FEE, 1993, ch. 4). This last provision was originally introduced in the 1978 revised draft, although in that draft an EC auditor had to verify the compliance or equivalence. In effect, sub-group consolidation has been eliminated in the adopted Directive, except where it is required as a protection of the interests of the minority shareholders or

in certain cases where the ultimate parent is outside the EC.

Legal Form of Subsidiaries

It should be noted that, although a member state may choose to require only parent *companies* to prepare group accounts, the required scope of consolidation clearly goes beyond subsidiary companies to cover all *undertakings* (i.e. including unlimited companies and unincorporated entities). This was clear from the AktG §329 (as quoted above). It may also be found in the First Draft (Art. 1, etc.) and in the Directive (Art. 1, etc.). This is different from previous British legal precedent (Companies Act 1948) or accounting standard (SSAP 14) which are drafted in terms of subsidiary *companies*. An explanatory point here is that unlimited entities are of greater economic significance in Germany than in the UK (Macharzina and Langer, 1991).

Foreign Subsidiaries

The AktG §329(2) allows foreign subsidiaries to be excluded from consolidation, which would have relieved the group from the difficulties of non-uniform accounting policies and of currency translation. However, even from the 1970 Elmendorff proposals, this permissive exclusion is abandoned in the context of international rules. Foreign subsidiaries are specifically to be included according to the First Draft (Art. 6) and the Directive (Art. 3).

Dissimilar Activities

The issue of exclusion of undertakings on the grounds of different activities was similarly reviewed and revised. In the First Draft, no such exclusion was to be possible:

A diversity of activities within a group is not in itself a valid reason for permitting undertakings to be excluded from consolidation. An individual company may also undertake different activities and will not be prevented from drawing up annual accounts. Some of the difficulties which might arise in such cases with regard to consolidation may be avoided by inserting special headings in the accounts with appropriate entries in the notes to the accounts, or by effecting a consolidation in terms of the different kinds of activity (Supplement 9/76, p. 26).

No exact version of such an exclusion existed in the AktG either, although §329(2) required the exclusion of a subsidiary from consolidation if it would impair the value of the disclosures in the consolidated financial statements. The 1978 revised draft *permits* the exclusion of subsidiaries that have very different activities from the rest of the group (Art. 10A). Article 14 of the Directive instead

¹²Under certain conditions, e.g. that the sub-group is included in a higher consolidation.

requires exclusion of subsidiaries from the consolidated accounts if, because of their different activities, their inclusion would impair the true and fair view given by the group accounts.

This is clearly a version of the then prevailing Anglo-Saxon idea whereby particularly financial subsidiaries were routinely treated by the equity method in group accounts. This practice was overturned by SFAS 94 in the US (1987) and the subsequent IAS 27. This change of mind occurred *after* the Directive was adopted. It is ironic, therefore, that the UK standard setters have had to try to circumvent the implementation in the Companies Act 1989 of Article 14 of the Directive by stating (in FRS 2, para. 25 of 1992) that this exclusion of subsidiaries on the grounds of 'true and fair' is exceptional.

Excludable Subsidiaries

Other permitted exclusions change across the documents. The AktG (§329(2)) allows immaterial subsidiaries to be excluded, as does the First Draft (Art. 10). The Directive (Art. 13) allows exclusions where the subsidiary is immaterial; where there are severe long-term restrictions on management; where the information necessary would involve disproportionate expense or undue delay; or where the shares are held exclusively with a view to resale. This extensive list goes beyond German precedent but is very similar to the permitted exclusions of the British Companies Act 1948 or the required exclusions of the British SSAP 14 (see Appendix 1).

Preparation of consolidated accounts

Other changes from the First Draft revise positions that otherwise would have given the Directive a German flavour.

Accounting Date

AktG (§331(3)) requires group companies to have the same accounting date or to prepare, and have audited, special accounting statements covering the period of the consolidated accounts (i.e. not just interim statements). This strict requirement is carried through to Article 14 (1)(e) of the First Draft, including the requirement to have any special accounts audited. The insistence on a common accounting date and accounting policies is justified by the EC legislators by the fact that a company with dominant influence over others would be in a position to insist on these matters (Supplement 9/76, p. 29). In the final Directive, Article 27(3) permits a group company to have a balance sheet date up to three months before that of the consolidated accounts. A greater difference in time would necessitate only interim accounts for the intervening period to be drawn up, and there is no mention of audit in this context. This is more

in line with Anglo-Saxon practice of the period (e.g. SSAP 14, para. 18).

Accounting Policies

The AktG, the 1971 draft of the Fourth Directive and the *avant projet* for the Seventh Directive do not contain a 'true and fair view' requirement. However, this changes by the 1974 version of the Fourth Directive and by the First Draft of the Seventh Directive (Art. 9). In these two documents, the true and fair view requirement has a status equal with the requirement to comply with the provisions of the Directive. However, by 1978, in the adopted version of the Fourth Directive and in the European Parliament amended version of the Seventh Directive, the true and fair view is required to override¹³ other provisions, although not the scope of the group.¹⁴ This is obviously a move in the UK direction.

As to uniform group accounting policies, the AktG §331(1) requires consolidated accounts to take up the values as they appear in the single entity accounts, except when they are not in accordance with German principles¹⁵ (§336 (3)). The First Draft's Article 15 also requires the same values to be consolidated as they appear in the single entity accounts. This is presumably a measure to prevent manipulation and also aids readers of both the single entity accounts and consolidated statements to gauge the impact of the former on the latter. However, in order to ensure a coherent view of the results and financial position of the group, as if from the standpoint of a single economic entity, the First Draft includes the additional provision that all group companies use the same valuation methods (Art. 15(b) and (c)). That is, the German emphasis on transparency has been supplemented by the need to show a true and fair view of the group. The Explanatory Memorandum makes this explicit: 'The group accounts can only give the desired true and fair view (*'getreuen Einblick'*)¹⁶ where the items contained therein are valued on an identical or at least comparable basis' (Supplement 9/76, p. 29).

In the final version of the Directive, Article 29(2) requires the consolidating company to use the same valuation methods in the group accounts as in its own accounts (although member states may

¹³For a detailed examination of the wordings and strengths of the true and fair requirement in EC countries, see Nobes (1993).

¹⁴The true and fair requirement in the Seventh Directive relates to the undertakings included in the group accounts not to which undertakings shall be included.

¹⁵The values must be in accordance with *Grundsätze ordnungsmässiger Buchführung*, which are not fully codified.

¹⁶The 1976 draft of the Seventh Directive, like the 1974 draft of the Fourth Directive, contains the words '*einen getreuen Einblick*'. These words are replaced in the final versions of both Directives (1978 and 1983, respectively) by the longer wording now familiar in German law (see Nobes, 1993 for more detail).

prescribe or allow the use of different valuation methods, provided these are disclosed). Assets and liabilities of group companies using different rules must be revalued according to group valuation methods. The elimination of inter-company profit can, according to Article 26 of the Seventh Directive, be limited to the group's share of those profits rather than the total. This is not the case in the AktG (§331(2)) or in the First Draft (Art. 14). There seems to be neither German nor British (nor US)¹⁷ precedent for this.

Consolidation methods

Acquisitions and Mergers

In the AktG, only full consolidation is dealt with. By contrast, the First Draft, in Articles 12 and 18, describes full and proportional consolidation. The Seventh Directive describes three methods in Articles 19, 20 and 32, having added the pooling of interests method. This takes account of the range of European practice.

The method of full consolidation described in the First Draft (Art. 12) is Anglo-Saxon. The Explanatory Memorandum (p. 27) discusses the choice that had to be made in this respect:

In one Member State, consolidation is normally carried out on the basis of the net assets of the undertaking to be consolidated as it stands at the end of each financial year. Under this method, the reserves formed by the undertaking to be consolidated during its group membership will disappear into the consolidation differences and will not be shown under the group reserves in the group accounts. The consolidation differences will therefore change every year according to the movement of the reserves held in the undertaking to be consolidated.

This describes the predominant practice¹⁸ in Germany on the basis of AktG 1965 (§331) (Beeny, 1975, p. 29), and is contrasted with the Anglo-Saxon method, leading as the latter does to a fuller presentation of movements on group reserves instead of hiding transfers to and from reserves in the 'difference on consolidation'. Since the results before and after acquisition are thereby strongly differentiated, the clarity of the picture of the group's financial position and the results of its activity is enhanced. Article 19 of the Seventh

Directive retains this method. The treatment of goodwill resulting from this calculation is considered in the next subsection.

Merger accounting for situations in which the acquiring company has issued shares as consideration for its controlling participation in another company is not described as a separate technique in the AktG. Beeny (1975, p. 30), however, points out that the then normal German acquisition method of consolidation approximates to what in the UK would be called the merger method: shares issued as consideration were recorded at their nominal value as were the shares transferred to the 'acquiring' company, the assets and liabilities were transferred at their book values rather than fair values and there was no distinction between pre- and post-acquisition profits in calculating the difference on consolidation. Despite (or perhaps because of) this similarity, there was no separate mention of merger accounting in the AktG.

In the First Draft, there is also no mention of merger accounting. This is not surprising, given this German background, the lack of use of the method in most of continental Europe and the fact that it was of uncertain legality in the UK and Ireland in 1976.¹⁹ However, the method was made legal in the Companies Act 1981 in the UK, although it has not been made legal in Ireland. After the 1981 Act, the UK's Accounting Standards Committee issued ED 31 on the subject of merger accounting in 1982. The UK put pressure on the EC to include merger accounting as an option in the Directive, and this resulted in Article 20, which is a member state option.

Associates and Joint Ventures

As mentioned earlier, the AktG did not recognise a particular treatment for associates or joint ventures, which were therefore to be treated as investments. However, in the First Draft (Art. 17) and the Directive (Art. 33), the equity method is demanded for associates and allowed for joint ventures. Proportional consolidation is the member state optional alternative for joint ventures. This is consistent with UK practice of the time, and that of several other member states. The definition of an associate in the Directive (and the First Draft) is broadly in line with the UK's (i.e. based on significant influence, generally holdings of between 20% and 50%). Previous French precedent was holdings of 33⅓% to 50%; Dutch precedent, 25% to 50%. In the 1970s, most other EC countries did not have rules on group accounting or did not allow the equity method.

¹⁷ARB 51 requires complete elimination.

¹⁸We are grateful to Dieter Ordelheide for pointing out that one interpretation of the capital consolidation method was that the initial consolidation difference was not subsequently changed, but reserves were adjusted. This was called the '*modifizierte anglo-amerikanische Methode*' (see Busse von Colbe and Ordelheide, 1976, pp. 98 ff.).

¹⁹The illegality concerns the issue of shares at par, without the creation of a share premium account. This was suspected to be illegal, but was not clearly so until the 1980 tax case of *Shearer v. Bercaïn*.

Goodwill

Calculation

The precise calculation of goodwill is also an issue where the evolution can be followed. On this subject, the AktG referred only to individual accounts. Goodwill could not be recognised as a specific asset, but individual assets acquired when acquiring an enterprise could be held at inflated values:

If ... the consideration paid for the acquisition of an enterprise exceeds the values of the individual assets of the enterprise at the date of the acquisition, then the difference may be included in the captions of fixed and financial assets. The amount must be shown separately and amortised by depreciations of at least one fifth in each subsequent fiscal year. (AktG §153 (5); translation: Mueller and Galbraith, 1976.)

Such increased values would be taken through to group accounts. However, the prohibition on recognising goodwill as a separate asset was not removed for the group accounts. Consequently, where the parent had bought the shares of a company for more than the book value of its net assets, a consolidation difference was shown in the group balance sheet, as discussed earlier.

By contrast, Article 12 of the First Draft states that, up to a point, the consolidation difference at the date of acquisition must be allocated to the related asset and liability captions:

Differences arising from compensation shall be entered directly against the relevant items in the group consolidated balance sheet. Any balance not so attributable shall be shown as a separate item with an appropriate heading.

One could read from this that 'fair values' of assets were generally to be the end result, with goodwill as the excess.

However, this mixture of the German feature of starting with book values and the Anglo-Saxon features of acquisition date and fair values was abandoned. Consequently, in Article 19(1) of the final Directive, there is an option between: (a) initial use of book values at the date of first consolidation followed by allocation to items whose 'value' is above or below their book values, and (b) initial use of (fair) 'values' of identifiable assets and liabilities at the date of acquisition.

Subsequent Treatment

Article 16 of the First Draft envisaged that any residual difference on consolidation should be posted to a special caption (goodwill) and written off over a period not exceeding five years. Although not specifically stated, depreciation through the profit and loss account is presumed to

be the requirement. The amortisation period is the same as that for the revalued assets in §153(5) AktG, quoted above. The revised 1978 version of the draft is more flexible (see Appendix 2), and Article 30(1) of the final Directive provides for goodwill to be amortised over a period of up to five years or longer up to its useful economic life (as according to Article 37 of the Fourth Directive). In addition, Article 30(2) allows direct deduction from reserves. Each of these changes is a move away from the AktG.

Size exemptions

The AktG, which applied to AGs and KGaAs, did not contain exemptions from its rules based on size criteria. However, the *Publizitätsgesetz* of 1969 had applied many of the rules of the AktG to other types of company (principally GmbHs)²⁰ above certain size criteria.²¹ This idea of exempting smaller companies from certain provisions was absorbed into the Fourth and Seventh Directives, based on the same type of criteria (i.e. balance sheet total, net turnover and average number of employees), though at much lower size levels.

In the Directives there are two such sets of thresholds²² and therefore three size categories of company or group (small, medium and large). The Seventh Directive refers to the appropriate Articles in the Fourth Directive to establish the exact size criteria. The exemptions in the First Draft of the Seventh Directive are as follows:

Small groups: exempt from audit (Art. 23); abbreviated format for balance sheet publication (Art. 24).

Medium and small groups: abbreviated format for profit and loss account publication (Art. 11).

These are somewhat extended in the 1978 amended proposal (see Appendix 2). In the final Directive, none of the exemptions appears specifically. Instead, there is a member state option to exempt small and medium groups from the preparation (and, therefore, obviously from audit) of group accounts (Art. 6). This is a very broad exemption, of which *all* member states have taken some advantage (FEE, 1993). Clearly, the German idea of reducing burdens for smaller companies was retained in the Directive (and indeed has been exported to the UK).

²⁰However, those GmbHs with AG or KGaA subsidiaries would already have been covered.

²¹See footnote 6.

²²The two-of-three rule is kept. The size criteria in the 1974 draft are, for small companies: balance sheet total of Ecu 100,000; sales of Ecu 200,000; and 20 employees. For medium companies: Ecu 1m; Ecu 2m; and 100 employees. By the final Directive of 1978, the criteria for small companies are Ecu 1m; Ecu 2m; and 50 employees. For medium companies: Ecu 4m; Ecu 8m and 250 employees.

Conclusions

The Start Point and the Direction of Movement

It is clear from the analysis above that the German 1965 *Aktiengesetz* was an important model for the first published draft of the Seventh Directive. It is also clear that there are increasing differences from the AktG as one moves to the First Draft, then to the 1978 amended proposal, and then to the final Directive.

This prompts the question of whether a particular direction of movement can be discerned. In the period of evolution of the Directive (late 1960s to 1983), the countries in the EC with the most detailed rules on group accounting, apart from Germany, were the UK and Ireland.²³ The British Companies Act 1947 (consolidated as the 1948 Act) contained instructions to prepare group accounts and a number of detailed provisions. SSAP 1 of 1971 regulated accounting for associates; SSAP 14 of 1978 contained basic rules for the preparation of group accounts; ED 3 of 1971 and ED 31 of 1982 had dealt with acquisition accounting and merger accounting; and ED 30 of 1982 proposed rules on goodwill. All the while, very extensive 'generally accepted practice' was in operation.

The first three columns of Appendix 1 show, for 19 main features of the Directive, how most of the provisions gradually moved away from the AktG. It can be seen that, in the following 14 cases, the final Directive was closer to UK rules or practice (column 4 of Appendix 1) than to the AktG. Mostly, this results from substituting UK rules for German rules, but in a few cases by adding a UK option to German rules. In all these instances, the Directive led to changes to German law. The 14 cases (using the numbering of Appendix 1) are:

1. Definition of parent.
2. Legal form of parent company.
3. Groups with no parent company
6. Foreign subsidiaries included.
7. Dissimilar subsidiaries excluded.
8. Permitted exclusions.
10. True and fair view override.
11. Uniform policies required.
13. Merger accounting allowed.
14. Equity method required for associates.
15. Joint ventures to be equity accounted or proportionally consolidated.
16. Date of goodwill calculation.
17. Use of fair values.
18. Choice of goodwill treatment.

²³Similar Irish laws followed the British Companies Act 1948. Standard-setting was carried out jointly for the UK and Ireland from 1970 to 1990 by the Accounting Standards Committee and its predecessor.

An International Coalition

The remarkably broad front over which the changes in the Directive took place, mainly from 1979, suggest a substantial coalition in the EC in favour of the Anglo-Saxon methods.²⁴ It was noted in the early part of this paper that in Stage I of the process (the *avant projet*) a similar change to professional consensus had occurred much earlier, by 1974. An explanation for this shift is proposed now.

In the 1970s, the countries with experience of group accounting for most groups over many decades were the UK, Ireland and the Netherlands.²⁵ Denmark had introduced consolidation requirements in 1973 (Christiansen, 1992). All these countries were heavily influenced by multinational companies, multinational accounting firms and US practice. France, through the efforts of the Commission des Opérations de Bourse (founded in 1967), was encouraging the development of consolidation in the 1970s and was also influenced by the practices of New York and London (Standish, 1991; Scheid and Walton, 1992). It is suggested that professional accountants from at least the five countries referred to in this paragraph were sufficiently persuasive by the time of the Groupe d'Etudes' memorandum of 1974 to overcome the earlier German-based consensus of the original six countries. Further clues to this move are that:

- (i) For most EC countries, a typical professional representative on the Groupe d'Etudes and other similar bodies is a partner in a large accountancy firm, with strong Anglo-American influences.
- (ii) German and other civil law country representatives were comparatively relaxed about changes away from the AktG in the field of consolidation because such changes have no effect on either taxation or distributable profit, which are the key issues in German accounting. Further, there was no long tradition to defend, since German consolidation practices dated only from after 1965 when the AktG came into force.

From 1974 onwards the coalition built further, as will be explained, so that by Stage III (governmental negotiations) it was very powerful. The International Accounting Standards Committee

²⁴'Anglo-Saxon' is defined in footnote 3. 'Anglo-Saxon methods' refer here to the broad consensus that the fair view demands the production of consolidated accounts and that these should include foreign subsidiaries, equity accounted associates, fair valued assets of subsidiaries, etc.

²⁵The UK and Ireland have already been discussed. Reference for extensive consolidation practice in the Netherlands includes Zeff et al. (1992).

containing four EC states²⁶ as permanent board members had, in 1976, issued its consolidation standard (IAS 3) which was consistent with UK practice. In its 1977 opinion²⁷ on the First Draft, the EC's Economic and Social Committee noted the publication of IAS 3 and encouraged the Commission to establish maximum conformity between international and European rules. The Italian governmental regulatory body for listed companies (CONSOB) had also called for the use of international accounting standards for group accounts in 1981. The Groupe d'Etudes had also issued several documents²⁸ in favour of the moves shown in Appendix 1. By contrast, Greece, Spain and Portugal, where consolidation was rare or non-existent in the 1970s, did not join the EC until 1980, 1986 and 1986, respectively. By the end of the 1970s, the scene was set for a major move towards UK group accounting.

Changes Stage by Stage

A suggested explanation for the change to professional consensus in Stage I has been given above. In Stage II, the Commission largely ignored this change and drafted a Directive clearly based on the AktG. Again, it has already been suggested that this is not surprising given the control by lawyers from a civil law tradition, who were basically supplementing the Fourth Directive, which had a clear German feel. Some changes were made in the second (1978) draft of the Directive; the major ones (those in Appendix 2, except for the first one) being consequential on the amendments agreed in the adopted version of the Fourth Directive of the same year. However, most of the major changes occur after 1978, once the Directive entered Stage III (negotiations in the Council of Ministers). Incidentally, the 1971 memorandum proposed eight Articles; the First Draft contained 21 Articles; the 1978 draft added eight further Articles;²⁹ and the adopted Directive contained 51 Articles. The increase after 1978 was largely due to extra options, exemptions and transitional provisions.

As suggested above, the international context of Stage III (the period from 1979 to 1983) would have supported a move from German to Anglo-Saxon consolidation techniques. Further, the German governmental negotiators would have been less concerned with changes required by the

Seventh Directive than with the Fourth for the same reasons as suggested for professionals as in (ii) above: the lack of relevance of group accounts for the calculations of tax and distribution of profit, and the lack of a long tradition of group accounting in Germany. Indeed, the subsequent German implementation of the Seventh Directive chose to take several of the Directive's Anglo-Saxon options into law.³⁰ Incidentally, the final Council of Ministers negotiations were carried out in the first half of 1983 when Germany held the presidency of the Council.

By contrast, the prevailing UK opinion was that the really important financial statements were the group accounts. One continental European governmental negotiator has commented that generally the UK negotiators adopted 'a rather uncompromising manner as though no other text than that of the British Companies Act could ever qualify for inclusion in the Directive'.³¹ It was also possible to use the conclusions of IAS 3 (agreed by a committee with a large EC presence, as noted earlier) as persuasive argument for change from the published drafts of the Directive.

Political Players

Three main players have been identified as being particularly associated with the three stages: respectively, professional accountants at the *avant projet* stage, Commission lawyers at the published draft stage, and governmental negotiators leading up to the adoption of the Directive. However, each group was involved in more than its own stage. For example: (i) it was the Commission that requested the initial professional memoranda and set their terms of reference; (ii) the profession commented on the published drafts in Stage II and on many private drafts in Stage III; (iii) certain members of the profession were involved in Stage III as governmental advisers or even delegates;³² (iv) governmental pressures would have been brought to bear on the Commission at all stages; and (v) the Commission would have defended its ideas in Stage III.

The fundamental objectives of these main players may be as follows. The professional accountants would be keen to ensure that the Directive

²⁶France, West Germany, Netherlands, UK-and-Ireland. The UK and Ireland were jointly represented on the board of the IASC by nominees of the Consultative Committee of Accountancy Bodies.

²⁷*Official Journal of the EC*, C75/1977, p.6.

²⁸See, for example, a remark on this in the Commission's Explanatory Memorandum preceding the 1978 amended proposal.

²⁹The 1978 draft retained the numbering of 1976, so new Articles were inserted as '17A', etc.

³⁰For example, the German 1985 *Bilanzrichtliniengesetz* changes German law by not requiring horizontal consolidation and by exempting groups not headed by a limited company. There are also options to use the Anglo-Saxon version of fair value accounting and to depart from the parent's valuation rules in the group accounts (see FEE, 1993).

³¹Peter Wessel, one of the Dutch negotiators on the Fourth and Seventh Directives, suggests this in a letter of 1 November 1993.

³²For example, Paul Rutteman of Arthur Young (as it was then) extensively advised the UK governmental negotiators; and Peter Wessel of Moret Limperg was appointed as a temporary special governmental delegate.

would continue to allow their own preferred national practices, and they might have an evangelical wish to see such practices spread throughout Europe. The Commission staff aim for, and are largely judged on, the successful adoption of Directives and the subsequent co-ordination of laws. They will favour legalistic solutions and have little interest in economic conceptual frameworks. Governmental negotiators will be alert to policy considerations such as taxation and international competitiveness, though the former may be of little significance in this particular case. Governments will also respond to strong lobby groups, e.g. the accountancy profession in the UK or industrialists in Germany. These groups will be aiming to preserve the status quo, to maintain flexibility, to minimise costs, and so forth. One powerful example of the influence of corporate lobbyists is the inclusion of special Articles in the Seventh Directive that enable the unique consolidation practices of Unilever and Royal Dutch Shell to continue (Articles 12 and 15). Other lobbyists who

might work through the Economic and Social Council, among other routes, would include unions and analysts who would be interested in better quality information and more disclosures.

In summary, what became the Seventh Directive was first drafted in the late 1960s by a committee chaired by a German (with no UK member). Throughout the whole period until 1983, the Commission employee responsible for the Directive was a German lawyer. The final Council of Ministers' negotiations in the first half of 1983 were conducted while Germany was presiding. Nevertheless, although the earliest memoranda and the First Draft were close to the AktG, the Directive itself was far removed; most of the change having occurred in the Council stage from 1979. This is connected with the building of a coalition of opinion in favour of change, which had formed in professional groups by 1974 and more generally by 1979. This paper has proposed a model of EC rule-making and has examined the evolution of the Seventh Directive in detail for the first time.

Appendix 1: Evolution of consolidation rules

AktG	First Draft	Seventh Directive	UK practice (before 1983)
<i>Scope</i>			
1. Definition of Parent: Uniform direction (§329), evidenced by controlling influence, control contract, complete integration, or (rebuttably) majority ownership of equity (§§16–18).	Uniform direction (Arts. 3 and 4). Controlling influence may be exercised (Art. 2(1)). Presumed where: Majority of voting rights (Art. 2(2)(a)). Right to appoint majority of board (Art. 2(2)(b)). Actual exercise of control (Art. 2(2)(c)).	Majority of votes (Art. 1(1)(a)), or right to appoint majority of board (Art. 1(1)(b)), or right to exercise dominant influence over board (Art. 1(1)(c)), OR* has exercised dominant influence over board (Art. 1(1)(d)(aa)), or control agreement (Art. 1(d)(bb)), OR* actual exercise of dominant influence (Art. 1(2)(a)), OR* uniform direction (Art. 1(2)(b)).	Majority of the equity (1948 Act, S. 154), or controls the composition of the board (1948 Act, S. 154), <i>but</i> exclusion if not controlled (SSAP 14, para. 21).
2. Groups with AGs and KGaAs as parents (§329). Also, groups containing such companies (EG AktG, §28), and other large groups (PublG).	Groups containing AGs, KGaAs, or GmbHs (Art. 6(1)(a)).	Parent undertaking is an AG, KGaA or GmbH OR* where group contains such a company (Art. 4(1) and (2)).	Parent is limited company (1948 Act, S. 150(1))

3. Uniform direction requires horizontal consolidation (§§18(2) and 329).	Unified management requires horizontal consolidation (Art. 4(1)).	Horizontal consolidation is a member state option (Art. 12).	No consolidation if no parent.
4. Sub-group consolidation only where ultimate parent does not produce group accounts per AktG (§330).	All limited company parents must produce group accounts even if consolidated themselves (Art. 6(2)(b)).†	Not required unless requested by shareholders (Art. 8) OR* in certain cases if ultimate parent is outside EC (Art. 11).	Not required if the company is a wholly owned subsidiary of another British company (1948 Act, S. 150(2)(a)).
5. Subsidiary undertakings (§330).	Subsidiary undertakings (Art. 2).	Subsidiary undertakings (Art. 1).	Subsidiary companies (1948 Act, S. 154).
6. Foreign subsidiaries could be excluded (§329).	Domestic and foreign subsidiaries to be consolidated (Art. 6(1)(b)).	Domestic and foreign subsidiaries to be consolidated (Art. 3(1)).	Domestic and foreign subsidiary companies to be consolidated (1948 Act, S. 150(1)).
7. Exclusion required if value of disclosures impaired (§329).	No exclusion.†	Exclusion required if subsidiaries are so different as to impair the true and fair view (Art. 14).	Exclusion required if subsidiaries are so dissimilar as to be misleading (SSAP 14, para. 21).
8. Exclusion permitted where immaterial (§329).	Exclusion permitted where immaterial (Art. 10).†	Exclusion permitted where immaterial, severe long-term restrictions, expense or delay, shares held for resale (Art. 13).	Exclusion permitted where impractical, immaterial, expense or delay, misleading or harmful, very different (1948 Act, S. 150(2)(b)). Exclusion required where so dissimilar to be misleading, not controlled, severe restrictions, temporary control (SSAP 14, para. 21).

Preparation of consolidated accounts

9. Same date for group companies, or special accounts to group date (§331(3)).	Same date for group companies, or special accounts to group date and audit (Art. 14(1)(e)).	Same date for group companies OR* date within 3 months prior to group date, or interim accounts (Art. 27(3)).	Same date unless good reasons then make adjustments and disclose (1948 Act, S. 153(1)).
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Accounting values/policies

10. Proper principles. As sure a view as possible according to the valuation rules (§149).	True and fair view (Art. 9(2)).†	True and fair view overrides (Art. 16).	True and fair view overrides (1948 Act, S. 149).
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(continued on next page)

11. Same values as in single entity accounts, but not uniform policies (§331(1)).	Same values as in single entity accounts and uniform policies (Art. 15).	Uniform policies, therefore revaluations where necessary (Art. 29).	Uniform policies (therefore adjustment where necessary) or, in exceptional cases, disclosure and numerical reconciliation (SSAP 14, para. 16).
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12. Elimination of 100% of intra-group profit (§331(2)).	As AktG (Art. 14).	As Draft, OR* elimination of only group's share (Art. 26).	No rule, but general practice to eliminate fully.
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Consolidation methods

13. Full consolidation (§331).	Acquisition method (Art. 12).	Acquisition method (Art. 19) OR* merger accounting (Art. 20).	Acquisition method or merger accounting (general practice, e.g. ED 31).
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14. Associates at cost (§153).	Equity method (Art. 17).	Equity method (Art. 33).	Equity method (SSAP 1).
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15. Joint ventures at cost (§153).	Equity method OR* proportional consolidation (Art. 18).	As Draft (Art. 32).	Equity method or proportional consolidation (SSAP 1, para. 10).
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Goodwill

16. Difference on consolidation calculated each year (§331).	Goodwill calculated at time of acquisition (Art. 12).	Goodwill calculated at time of first consolidation or at acquisition (Art. 19).	Goodwill calculated at acquisition (general practice, e.g. ED 30).
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17. Difference calculated using book values (§331(1)).	Goodwill calculated using book values then allocated to individual net assets as far as possible (Art. 12).	Goodwill calculated starting with book values at first consolidation OR* using fair values at acquisition. (Art. 19).	Goodwill calculated using fair values (general practice, e.g. ED 30).
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18. Difference not amortised.	Goodwill amortised over up to 5 years (Art. 16.).†	Goodwill amortised against profit over up to 5 years or longer, OR* immediately written off against reserves (Art. 30).	Goodwill immediately written off against reserves or amortised over useful life (general practice; e.g. ED 30).
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Size exemptions

19. AktG extended by Publizitätsgesetz but only to large undertakings.	Size exemptions for audit and formats (Arts. 11, 23, 24).†	Size exemptions a member state option for the preparation of group accounts (Art. 6).	No size exemptions.
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*OR denotes a member state option.

†A change from the 1976 position first appears in the 1978 version.

Appendix 2

Important Changes in the 1978 Amended Proposal for the Seventh Directive (same Article numbers as 1976 Draft)

Art. 6(2). Sub-group consolidated accounts may be dispensed with provided a parent at a higher level has produced consolidated accounts in conformity with the Seventh Directive. Any minority shareholders must approve.

Art. 9(4 and 5). Where application of the rules would not lead to a true and fair view, additional information must be provided or, in exceptional cases, the rules must be departed from.

Art. 16. Member states may authorise a write-off period for goodwill on acquisition of greater length than the five years of the First Draft, provided the expected useful life of this asset is not exceeded.

Art. 24. Small groups to be exempted from publishing a profit and loss account and directors' report. Medium groups can publish an abbreviated balance sheet and notes.

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Evaluating the Work of Internal Audit: A Comparison of Standards and Empirical Evidence

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Abstract—Numerous changes have recently been proposed or made to audit standards providing guidance for external auditors' evaluations of internal audit work. This paper reports the results of a study to compare the UK's Accounting Practices Board Statement of Auditing Standard 500, first, with similar standards promulgated by international, Canadian and US societies, and second, with audit quality factors derived from practising internal auditors. The data for the latter comparison was obtained from a two-phase study that first generated a set of potential quality factors through intensive structured interviews with audit groups from six different and diverse organisations, and then obtained evaluations of these factors from a large sample of internal auditors worldwide. Results first indicate that there are strong similarities between the guidance provided by SAS 500 and that proposed or promulgated by the UK, international, Canadian and US audit groups. Furthermore, the guidance provided by these SASs for items to consider in evaluating the quality of internal audit work are largely in agreement with the factors determined by practising internal auditors. There are, however, several items listed in SAS 500 that are not considered useful by internal auditors and there are other factors considered crucial by internal auditors but not mentioned in the SASs.

Introduction

Changes in the global business environment over the past two decades have brought about reconsideration and re-engineering of the manner in which business organisations are managed and audited. Many organisations are downsizing in numbers with flatter management structures to curb costs. Consumers are demanding higher quality products for less money and with fewer delays. Internal audit departments within these organisations are expected to parallel the general economic movement by providing greater value services with fewer personnel and less expenditure of corporate resources.

Strong competitive bidding among external audit firms for audit clients has also forced the profession to identify ways to audit clients more efficiently while maintaining or improving the degree of confidence when issuing opinions. These cost pressures have been exacerbated by increasing legal sanctions for erroneous decisions, decreasing audit fees, and normal inflationary increases in the cost of performing audit services. A necessary by-product of these influences has been increased motivation for external auditors to reduce cost by relying more heavily on the work performed by

clients' internal auditors when the quality and type of their work justify it.

Numerous changes have recently been made (or proposed) to auditing standards and guidelines for assisting auditors in meeting the challenges generated by the rapidly changing global business community. For example, from an independent external audit perspective, the Auditing Practices Board (APB), the International Auditing Practices Committee (IAPC), the American Institute of Certified Public Accountants (AICPA) and the Canadian Institute of Chartered Accountants (CICA) have all promulgated standards and guidelines intended to help improve the effectiveness and efficiency of audits performed in the remainder of the decade and into the 21st century. One of the changes common to the APB's SAS 500 Exposure Draft, *Considering the Work of Internal Auditors*, and the other standards (APB, IAPC, CICA and AICPA) has been guidance for increased reliance on internal auditors' work. Beyond the new or proposed standards for external auditors' evaluation of internal audit work, the Institute of Internal Auditors (IIA) has adopted and updated a worldwide set of standards for internal auditors. Although only a minority of UK internal auditors belong to the IIA, the IIA-UK has incorporated the worldwide standards, interpretive Statements on Internal Audit Standards (SIASs), and IIA code of ethics into the 1992 reprint of the *Standards and Guidelines*. Most internal audit groups indicate that they are largely in compliance

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with these standards (Burnaby et al., 1994). Other countries (France, Italy, New Zealand, Australia, Canada) have chapter affiliates that have similarly adopted the worldwide IIA standards that serve to promote higher quality work by participating internal auditors.

The purposes of this study are, first, to identify and compare the standards and guidelines promulgated by the respective professional societies; and second, to determine the extent to which guidance in these standards agrees with responses from large samples of internal auditors concerning the factors that most influence the quality and productivity (effectiveness and efficiency) of internal audit work. The second stated purpose, and the research approach, used here, are based on the premise that the collective group of internal auditors performing the day-to-day internal audit programmes can aid external auditors in identifying the facts that best determine when internal audit work is of sufficiently high quality to be reliable and usable. The remainder of this study and discussion of external auditor evaluations of internal audit work is split as follows:

- A recognition of the changes in both the internal and external audit professions leading to both the need and ability to further rely on internal audit work.
- A comparison of specific guidance provided in the SAS 500 Exposure Draft with similar standards promulgated by international, US and Canadian societies.
- A description of the study performed to identify and rank the factors considered by internal auditors performing day-to-day internal audit process tasks as most critically affecting the quality and reliability of their work.
- The implications of the areas in which internal auditors are in agreement and disagreement with the considerations recommended by SAS 500.

Changing environments

Over the past two decades, auditors have witnessed massive conceptual, procedural and reporting changes. These changes have been partially driven by efforts to improve service, and partially by survival instincts to remain viable in a rapidly changing business environment. Most successful business organisations have become more global, more competitive, more cost efficient, more timely in producing goods or services, more productive per capita (downsized personnel), and more focused on customer wants and needs. Many of these organisations have adopted a total quality management (TQM) philosophy to achieve the difficult goal of continual quality and productivity improvements.

One clear indication of the TQM impact on the current business environment is the establishment of production and service quality standards by the International Organisation for Standardisation (ISO). In the UK, the British Standards Institution had previously adopted a series of standards (BS 5750) with the objective of establishing, documenting and maintaining effective quality assurance systems. The combined series of BS 5750/ISO 9000 quality standards provides a consistent set of quality assurance guidelines for application by organisations to provide evidence of commitment and ability to provide quality goods and services to their customers.

The ISO standards have subsequently been adopted by over 50 countries and are considered essential to doing business in the post-1992 European Economic Community. The standards also include guidelines for the training and certification of 'quality systems auditors' and the methodology for auditing their company's quality system internally. Many internal audit departments are involved in establishing and monitoring BS 5750/ISO 9000 quality assurance systems operations. There is little doubt that overlap exists between the audit activities promulgated for external, internal and quality systems auditors via APB, IIA-UK and BSI/ISO organisations.¹ If traditionally educated and trained auditors are to remain viable in the global environment reflected by the quality award criteria and standards mentioned above, the changes in all areas of audit standards, guidelines and practices will need to parallel the changes in the global marketplace.

The Changing Internal Audit Environment

Traditionally, internal audit departments:

1. review accounting and other control systems and compliance with laws, regulations and other requirements to provide company management with an appraisal of service to the organisation;
2. examine financial and operational reports to determine accuracy and usefulness to organisation management;
3. co-ordinate work with independent external auditors to better accomplish total audit objectives and reduce total audit fees incurred by the organisation; and
4. review auditable subunits of the organisation with respect to their adequacy, efficiency and effectiveness in conducting primary operations (operational auditing).

¹For greater detail on the overlap of IIA-UK/BSI/ISO standards, see Professional Briefing Note One, *Total Quality Management: Implications for Internal Audit Departments*, IIA-UK, London, 1992.

When external auditors evaluate internal audit work, attention is focused on the first three traditional functions with little emphasis on operational auditing. While providing these traditional services to the traditional customers (executive management, operating management and external auditors), leading internal audit organisations have recognised the need to continually improve their service performance and also to expand non-traditional services adding value to their respective organisations.

Perhaps greater in importance than the expanded scope of these traditional services are the extended set of internal audit stakeholders now considered to be 'customers' and the non-traditional approaches used to achieve the expanded services. One view of internal auditing is that it serves at the discretion of, and reports to, the audit committee. With adoption of the TQM philosophy, most IA departments also now consider the operating level auditee as a direct customer with wants to be satisfied. Additionally, the wants and needs of executive management, operating management and external auditors, as well as other stakeholders such as consumer groups, regulators, legislators and news media, must be considered when these persons or groups are likely to have direct impact on the auditable unit under examination.

Not only are the concepts of internal audit 'customers' being extended to persons and groups not previously considered, but the methods of obtaining and evaluating evidence are also changing rapidly. Use of advanced computer queries, data retrieval and communication networking are essential tools for increased audit efficiency. When internal auditors seek to improve service as consultants to operating management, a much broader scope of technical and interpersonal skills are required. Another change adopted by many leading internal audit groups is that auditee personnel are increasingly taught and relied upon to provide self-assessments of risk. The self-assessments help internal auditors to efficiently identify the trouble spots on which they concentrate with less attention paid to other less risky areas of operation. All of the above mentioned changes in the ways that internal audit services are performed, who is considered the customer, and who performs the activities, will affect the external auditor's planning of the nature, timing and extent of external audit activities.

The Changing External Audit Environment

The recent changes in the public accounting profession are numerous and complex. Given the global information age in which accounting and auditing professionals now practice, services must be responsive to the international capital markets

in which information professionals operate. Although proposals of the International Accounting Standards Committee (IASC) are influential over only those professional societies that voluntarily choose to associate and adopt the proposals and standards issued, it is clear that most accounting professionals are aware of the need for common accounting and auditing standards to properly serve existing international capital markets and their investors.

Deregulation of the London stock market, emergence of the 'stock around the clock' euphemism, rapid increases and dominance of Japanese market investments, and availability of electronic trading media are all products of the past decade. In order to better service these markets, the accounting and auditing profession has sought to improve reporting for both the financial statements and internal control structure as evidenced by the Ruttman Exposure Draft on *Internal Control and Financial Reporting*. On the one hand, these developments have brought about increased awareness of the need for international accounting and auditing standards, but on the other, they have also brought about increased competition with non-accounting advisory and consulting firms as well as with other accounting firms about who is to provide such a service.

Whether the global information markets and increased price competition (bidding between firms) have been beneficial or detrimental to the accounting profession and the overall quality of audit service is beyond the scope of this study. These market changes are, however, forcing other movements in the profession that directly affect the auditor's consideration of, and reporting on, financial statements, supplementary data and internal controls. Increased competition has required audits to become more effective in terms of assurance and goal accomplishment as well as more efficient in terms of utilising fewer resources. Greater utilisation of inherent risk analyses and improved assessments of internal control risks are two procedural changes intended to achieve the joint effectiveness and efficiency desired. Use of internal auditor's work is another means of achieving these objectives.

The Use of Internal Audit Work

It is apparent that there is an overlap between the work of internal and external auditors. Furthermore, results from this and prior studies (Burnaby, 1994) indicate that most internal audit directors wish to co-ordinate activities with those of the external auditors in order to reduce the total audit fees charged. It does not follow, however, that the external auditors can automatically use the work of internal auditors. Nor does it follow that internal auditors best utilise their time and resources by perfunctorily performing procedures

assigned by the external auditor. The goals of each unit can be accomplished at marginally lower total cost when internal auditors recognise the objectives of the external audit, modify their programmes to help achieve those objectives, and the external auditors recognise that internal auditors have performed needed procedures with acceptable levels of quality.

As an example, the general area of risk analysis is one in which clear overlap between internal and external auditors exists. Furthermore, both groups of auditors are using similar and expanded definitions and assessments of internal control such as in the Rittenman Exposure Draft on *Internal Control and Financial Reporting*, or the US equivalent COSO document entitled, *Internal Control-integrated Framework*. The external auditor performing an audit in accordance with promulgated standards will identify and assess inherent risks, general control risks, and specific cycle or application control risks. This is necessary to plan the audit, determine the tests to be performed and evaluate the evidence collected in order to form an opinion on the fair and accurate presentation of the financial statements. Internal auditors also assess these same risks but with the primary objectives of appraising their effectiveness and efficiency in order to assist the members of the total organisation to achieve continual improvement goals.

The selection of auditable units for scheduled internal audit assignments is commonly driven by risk assessment procedures. Following selection for audit, but prior to fieldwork, most internal auditors perform additional and more specific risk analyses of the units selected for audit. There is little marginal cost involved in co-ordinating the overall risk analyses and the more specific audited unit risk assessments to accomplish external auditor objectives and documenting the work for the review by the external auditors.

Based on both the general inherent and specific item risk analyses performed, internal auditors direct the testing performed within the fieldwork phase. For the auditable units selected, reviewing and monitoring control structure policies and procedures are often primary objectives of internal audit assignments. The internal audit reports for these engagements include an evaluation and conclusion on the controls tested. When the quality of the internal auditors' work in these areas is judged to have been performed adequately, external auditors may use this work to reduce other audit evidence gathering procedures and concurrently achieve greater efficiency whilst gaining higher degrees of confidence about the true and accurate presentation of the financial statements.

Prior research on internal audit work has followed two major avenues: the nature and quality of internal audit work; and, the external auditors'

judgment processes when evaluating internal auditors' work. In both professional promulgations and academic research, the clear majority of prior studies have been oriented toward the external auditor's judgment process. Several studies concluded that subjective evaluations of competence and work performance were considered most important by external auditors (Clark, Gibbs and Schroeder, 1980; Brown, 1983; Schneider, 1984; Margheim, 1986; Messier and Schneider, 1988). A subsequent study alternatively concluded that the level of materiality of the area under audit was the most important determinant of the extent to which internal audit work was relied upon (Moiser, Turley and Walker, 1986). Other recent studies indicate that external auditors also use assessments of inherent and control risks in the evaluation of internal audit work (Maletta, 1993; Maletta and Kida, 1993).

The published research on the nature of internal auditors' work has been largely survey based and oriented toward the extent to which external auditors rely on the internal audit function (Ward, 1979; Ward and Robertson, 1980). Results of these studies indicate that respondents believe there is increasing reliance on internal auditors and that this reliance is primarily focused on the evaluation of the internal control structure. However, none of these publications has directly addressed the specific determinants of what constitutes high quality internal audit work performance.

A comparison of standards and guidelines

Following significant pronouncements in the Cadbury Report, *The Financial Aspects of Corporate Governance*, the APB has adopted a massive project to review and update all existing auditing standards and guidelines. Exposure drafts of the proposed overall structure of Statements of Auditing Standards (SASs), and in particular SAS 500, *Considering the Work of Internal Auditors*, have been issued for public comment. When issued as final, SAS 500 will replace the current Auditing Guideline 3.408, *Reliance on Internal Audit*. An equivalent International Standard on Auditing (ISA), *Considering the Work of Internal Auditors*, was published by the IAPC in late 1992. There are four broad requirements in both the SAS 500 Exposure Draft and the ISA:

SAS 500.1. The external auditors should consider the activities of internal audit and their effect, if any, on external audit procedures.

SAS 500.2. The external auditors should obtain a sufficient understanding of internal audit activities to assist in planning the audit and developing an effective audit approach.

SAS 500.3. During the course of their planning the external auditors should perform a

preliminary assessment of the internal audit function when it appears that certain internal audit work is relevant to the external audit of the financial statements.

SAS 500.4. When the external auditors use specific internal audit work to reduce the extent of their audit procedures, they should evaluate that work to confirm its adequacy for their purposes.

North American professional accounting and auditing societies (CICA and AICPA) have also recently promulgated audit standards that expand and replace prior guidance on evaluating the work of internal auditors. A joint study group report, *Independent Auditors' Consideration of the Work on Internal Auditors* (CICA, 1989; AICPA, 1989), provides the basis for these standards including three general areas of consideration that overlap the four requirements proposed by the APB and IAPC: understanding the internal audit function; assessing the competence and objectivity of internal auditors; and determining the extent and effect of internal auditors' work. Because AICPA SAS 65 contains very similar general recommendations to SAS 500 but more specificity in items to be considered, the SAS 65 content will first be summarised, with noticeable differences to SAS 500 discussed subsequently.

Understanding the Internal Audit Function

SAS 65 specifies that the auditor should inquire of management and internal audit personnel the internal auditors': organisational status; application of professional standards; audit plan(s); access to records and possible limitations on scope; and mission statement. Specific procedures recommended to assess the relevancy of internal audit activities include:

- reviewing internal audit resource allocation in accordance with risk assessments;
- considering prior audit knowledge; and
- reading internal audit reports to obtain information about the scope of internal audit activities.

Assessing Competence and Objectivity

Auditors are encouraged to obtain or update prior information about the internal auditors': education and experience level; professional certification and continuing education; audit policies, programmes and procedures; auditor assignment practices; supervision and review activities; quality of documentation and reporting; and performance evaluations. In order to assess internal auditor objectivity, information should be initially obtained or prior information updated concerning:

- the organisational status of the director of internal audit;

- the level of management to whom reports are directed;
- the access of internal auditors to the audit committee or equivalent;
- policies with respect to auditing relatives or relatives' work; and
- auditing policies with respect to the internal auditors' recent or future assignments.

Extent and Effect of Internal Audit Work

Determining the extent of the effect of internal auditors' work on the nature, timing and extent of external audit procedures follows two primary streams. In the first stream, external auditors consider the materiality, risk and degree of subjectivity involved in the investigation. These considerations are necessary to determine the extent to which internal audit work is used, but are not directly related to an evaluation of the work's quality. The second stream involves direct assessment of internal audit quality as a determinant of the degree to which the work is usable in restricting the nature, timing or extent of other audit procedures.

Suggestions to help co-ordinate the work of external and internal auditors include: holding periodic meetings; joint scheduling of work; access to internal audit working papers; and, reviewing internal audit reports issued. Additional procedures recommended in the evaluation of internal audit work quality are the consideration of:

- the adequacy of scope on assignments;
- the adequacy of programmes;
- the adequacy of work paper documentation; and
- the consistency of reports with audit results obtained.

It is further recommended that the external auditor re-perform some tests and compare independent results with those obtained by the internal auditors when the financial statements assertions are deemed to be significant to the total audit.

APB, IAPC and AICPA Differences

The first, and most important, comparison between the APB's proposed SAS 500, the proposed ISA, AICPA's SAS 65 and the CICA standard is that all four standards guide auditors to similar overall considerations of internal auditor work quality. At different ends of the spectrum, however, the AICPA SAS 65 provides the greatest specificity in items listed for auditor consideration while the SAS 500 guidance lists fewer specific items and allows auditors greater freedom of ultimate judgment in the degree of internal auditor impact on the nature, timing and extent of external audit procedures. The proposed ISA, however, requires the most specific action when the external auditor intends to use specific internal auditor

work. The ISA states that auditors 'should evaluate and test the work to confirm its adequacy'. SAS 500 requires only that auditors 'evaluate that work to confirm its adequacy'. The noticeable difference is that no requirement is stated for testing the work. SAS 65 recommends, but does not require, specific re-performance of some internal auditor tests as a method of evaluation.

Another commonality of virtually all SASs is that they require auditors to exercise professional judgment in the application of standards to specific audit engagements. Because all the SASs (especially SAS 500) permit substantial latitude in the evaluation of internal audit work, additional comparison of the internal audit quality assessment considerations with the factors identified by practising internal auditors may lead to even greater effectiveness and efficiency.

Study methodology and results

In the previous sections, it has been recognised that both external and internal auditors have significant and direct interest in evaluating the quality of internal audit work performance. Beyond these auditor groups, the management of the entity under audit, the audit committee, and industry regulators also share a common desire to make objective evaluations of internal audit quality. An immediately recognised barrier to all these groups sharing a common assessment of quality is that they have dissimilar perceptions and often have conflicting motivations for evaluating internal audit quality. Service quality research and applications outside auditing provide some direction for generating objective measures of service process quality that can be used by internal audit groups to motivate continual process improvements and by external auditors in their evaluation of internal audit work.

A Process View of Internal Audit Quality

Most of the published research on process quality has been performed in the area of manufacturing production with some direct extensions into service industries. In order to circumvent the problems generated by differing perceptions and motivations, production quality literature typically concentrates on more objective quantitative measures of the production process used as an intermediate indicator of quality rather than more subjective customer utilisation (output) measures (Adam et al., 1986; Van de Ven and Ferry, 1981; and Tuttle, 1982). More specific definitions of these two alternative approaches applied to the evaluation of internal audit work can be dichotomised as:

- *Process measures* that concentrate on the work performed in the audit process and how well it

compares with established service criteria in the form of professional and self-developed standards.

- *Outcome measures* that concentrate on the amount of increased value perceived by the auditee, the auditee's superiors, the audit committee and/or other company management as a result of the auditor's report.

In the context of process versus output measures of internal audit quality, it is evident that many of the suggestions provided in SAS 500 for external auditor consideration are oriented towards the final output of internal auditors' work. The alternative presented in this study is for external auditors to also consider process measures of the work quality performed by internal auditors. The following sections of this paper compare: (1) benchmark factors identified by practising internal auditors to be indicative of quality across most engagements they perform with (2) the considerations of internal audit work quality suggested via the SASs. The results of these comparisons indicate the degree to which empirically determined factors agree with those promulgated for external auditor consideration.

Data Collection Process

The research process used to collect and analyse quality factors considered important by internal auditors comprises two distinct phases. In the first phase, six different groups of internal auditors from a diverse set of industries participated in six independent and intensive structured group interviews—three full days with each different group of five to eight internal auditors. Results obtained from these structured interviews included: definitions of the boundaries around and major phases (segments) in the internal audit process applied by nearly all internal audit departments; identification of the key factors that may vary between audit and are associated with internal auditors' achievement of desired quality levels; and, generation of potential measures for each identified quality factor for the purpose of indicating the degree of quality achieved. The structured group interview processes used in this study led to consensus within each of the six separate participating audit groups when generating these boundaries, factors and measures. The reliability of these study results was confirmed via comparisons that yielded highly similar results obtained from all six different and independent groups.

In the second phase of the study, responses to a combined listing of the Phase I factors and measures were obtained from a large sample² of practising internal auditors. These responses were analysed to better define the relative importance of the 15 key quality factors identified in Phase I³ and to rate the perceived usefulness of

Table 1
Profiles of the Participating Internal Audit Groups

Industry: National bank

Size of internal audit group: 60

Organisational profile: This firm hired primarily new graduates directly out of university. A more traditional pyramid structure (similar to external auditing firms) with staff, senior, manager and senior manager levels was used. A percentage of the employees made internal auditing a career position while most eventually left the internal audit group.

Industry: Oil and gas firm

Size of internal audit group: 120–140

Organisational profile: This firm hired primarily experienced internal and external auditors. A very flat structure was used where all audit staff were considered to be at essentially the same level. Median time on staff was approximately three years with auditors primarily moving to other positions within the company.

Industry: Chemical manufacturer

Size of internal audit group: 110

Organisational profile: This firm hired primarily new graduates directly out of university. A more traditional pyramid structure was used. While most staff eventually left internal audit, there were career path opportunities within the internal audit group.

Industry: Retail sales

Size of internal audit group: 85

Organisational profile: This firm hired a cross-section of new graduates and experienced auditors. The upper echelon of the audit staff had a pyramid structure, while the staff auditor level consisted primarily of personnel from other areas of the corporation that joined the audit staff on a three-year rotation.

Industry: Natural gas firm

Size of internal audit group: 15

Organisational profile: This firm hired primarily experienced internal and external auditors. A very flat structure was used where all audit staff were considered to be at essentially the same level. Roughly half of the positions were simply interim (approximately three-year) positions before entering other parts of the company, while the other half were career internal auditors.

Industry: Multi-product manufacturing

Size of internal audit group: 60–80

Organisational profile: This firm hired a cross-section of new graduates and experienced auditors. A more traditional pyramid structure with staff, senior and manager levels was used. A percentage of the employees made internal auditing a career position while most eventually left the internal audit group.

the associated potential measures. Results of the analyses provide objective rankings of the factors that many practising internal auditors believe to most affect the quality of their work and two or more objective measures of each identified factor.

The six organisations selected for participation in Phase I of the study represent a broad range of industries and organisational structures in which internal audit groups operate. The range in terms of size, industry and organisational structure provides strong validity for the commonly identified audit quality factors. With respect to organisational structure, the entities participating in this study include internal audit groups that rotate staff on a three-year basis, groups that hire experienced auditors from external audit firms or other internal

audit groups, and groups that provide career track audit positions. The participating internal audit group staff sizes ranged from small (15 auditors) to large (150–200 auditors). Table 1 provides a more in-depth profile of the internal audit groups from participating companies.

Although there are obvious industry and entity differences, the data collected from the diverse groups of auditors indicate strong commonalities in both the approach to the internal audit process and key factors individually identified as affecting audit quality. These results have important implications for the external auditors' evaluation of internal audit work quality.

Defining the Internal Audit Process

All six groups defined the starting boundary of the internal audit, for process quality evaluation purposes, as beginning subsequent to an auditee being selected for inclusion in the current year's set of audits but prior to contact of the auditee and initial planning of the audit. The end point for the process was identified either at the issuance of the

²Over 700 responses were obtained from a randomly selected sample of 3,000 from approximately 30,000 worldwide IIA members.

³For a more detailed discussion of the Phase I and Phase II methodology, refer to Sutton and Lampe (1991).

audit report (including closing conference with auditee) or right after receiving a response to the audit report from the auditee.

Based on these boundaries, participants then broke the entire audit process into smaller, but major, sequential stages. Again, the results indicate virtual consensus among the six diverse audit groups concerning the segmentation of the audit process (see Table 2). In all cases, a planning stage that includes a preliminary survey of the auditee is followed by a fieldwork segment conducted at the auditee site and a final phase that includes the reporting and closing conference with the auditee.

Because of the strong agreement between groups about the day-to-day tasks within the planning and fieldwork phases, discussion in this paper focuses on the apparent differences in the reporting phase of the audit. In addition to format differences between the six audit groups, it was also observed that the demeanour and content of reports varied within each individual group based on the various purposes of different audit engagements. From a format perspective, some groups present their reports at a closing conference with the auditee, while others require a formal response to the audit results. In these organisations, the auditees' formal responses are then included in the final audit report issued at a later date. Beyond such timing differences, variations in reporting demeanour are also observable. In some companies the internal audit group is perceived as, and works more like, a consultant using a reporting process oriented to value-added recommendations for improvement. In other organisations, the report is independently generated by the internal auditors with a specific rated evaluation of auditee controls. These differences in reporting tasks are also observable in the quality factors identified by the different audit groups as key to the completion of a quality audit. Furthermore, all the participating auditors considered the variations that occur during the reporting phase to have the most critical impact on audit quality.

Identified Key Audit Quality Factors

Following each group's consensus definition of the audit process, the objective of the structured

group interviews was shifted to identification of key factors perceived to affect completion of an internal audit engagement at a desired quality level. Each group independently generated a large number of potential factors that was subsequently reduced to a smaller and more manageable number of factors considered to most critically affect audit quality. Table 3 presents both the larger number of factors initially identified via the structured brainstorming technique and the reduced number of audit quality factors identified by each individual group as having a critical affect on internal audit quality.

Two important observations can be made of the data in Table 3. Although each of the six different internal audit groups identified a large number of varied quality factors, those considered to be critical by each group are similar. Many of the quality factors considered as key (critical) by any one individual group were also considered as critical by the auditors from the other organisations. Out of the total of 85 key quality factors, 51 are repeats resulting in only 34 unique factors that were subsequently reduced to the set of 15 considered to be most critical.

Additional analysis of the consistency between the six groups' selections and ratings of audit quality factors is provided via Kendall's Coefficient of Concordance. Because Kendall's test uses rank data to measure the level of concordance, the test was run separately for each of the three phases of the audit (i.e., planning, fieldwork and reporting).

The results show high correlation between the six groups for the planning and fieldwork phases of the audit, but little agreement on the critical factors during the reporting phase (see Table 4). These results are highly consistent with those found during the sessions used to identify the major audit phases and process tasks. While the processes defined for planning and fieldwork were common across all six organisations, the tasks defined within the reporting phase fluctuated from one organisation to the next. This deviation in the definability of the reporting phase is followed by predictably low levels of concordance between the participating groups.

Table 2
Composite of Audit Phases Identified by the Six Internal Audit Groups

<i>Banking</i>	<i>Oil and gas</i>	<i>Chemical</i>	<i>Retail</i>	<i>Natural</i>	<i>Multi-product</i>
Planning	Planning/risk analysis	Planning	Preliminary survey	Preliminary survey	Preliminary survey
Fieldwork	Transaction flow review				
	Audit testing	Fieldwork	Fieldwork	Fieldwork	Fieldwork
Wrap-up	Final evaluation and reporting	Reporting	Reporting	Reporting	Reporting

Table 3
Audit Quality Factor Identification

<i>Participating audit groups</i>	<i>Banking</i>	<i>Oil and gas</i>	<i>Chemical manufacturer</i>	<i>Retail sales</i>	<i>Natural gas</i>	<i>Multi-product manufacturer</i>
Total quality factors generated	55	83	91	65	75	81
Quality factors considered key	18	22	17	13	15	16
Key factors by phase and group						
Planning						
Audit team experience and training	X	X	X	X	X	X
Audit manager (supervisor) involvement and support	X	X		X	X	
Auditee co-operation and availability	X		X	X	X	X
Time available for planning	X	X	X		X	X
Understanding of risks (objectives)	X	X		X		X
Fieldwork						
Audit team experience and training	X	X	X		X	X
Time pressures (constraints)	X		X	X	X	X
Auditee availability and co-operation	X	X	X	X	X	X
Level of auditee documentation (automation)		X			X	
Complexity (technical) of issues		X	X		X	X
Reporting and review						
Audit manager (supervisor) involvement and support		X		X	X	X
Audit team experience and training (emphasis on primary report writer)	X	X	X		X	X
Complexity (sensitivity) of report findings	X	X	X	X	X	
Auditee co-operation and availability	X	X	X		X	X
Timing of the report	X	X		X		X

Relative Importance of Audit Quality Factors

In order to further evaluate the data aggregated from Phase I, the factors most highly and commonly rated by the six participating internal audit groups were combined into a questionnaire for distribution to a larger sample of practising internal auditors. A common benchmark factor was selected as a basis for adjusting the individual data sets to a common standard for evaluation by the Phase II survey respondents. The single most commonly identified factor, 'Audit team experience and training', was assigned the value of 100. The survey respondents were instructed to assign value weightings for each of the remaining 14 quality factors relative to the benchmark factor valued at 100. The composite set of audit quality factors and the associated factor weightings are presented in Table 5. Results indicate that

'Understanding risks' is the single most important factor, but that the reporting phase has the greatest overall affect on audit work quality.

Best Measures for the Key Quality Factors

Separate sets of sessions with each of the six audit groups in Phase I were used to generate an initial set of potential measures for each identified audit quality factor. An iterative approach (similar to that used to identify factors) resulted in numerous potential measures being generated for each factor. Subsequent rankings of measure usefulness reduced the large number of potential measures to a more manageable set of 'best measures'. A total of 45 measures (about three each for the 15 factors) were synthesised from the rankings provided by the six audit groups and included in the questionnaire distributed to the large sample of

Table 4
Test of Consensus Among Auditors on Selected Quality Measures (Kendall's Coefficient of Concordance)

<i>Audit quality factor</i>	<i>Degrees of freedom</i>	<i>X²</i>	<i>p-value</i>
All audit factors	44	4394.14	<0.0001
Planning			
Audit team experience and training (emphasis on primary planner)	3	117.04	<0.0001
Audit manager (supervisor) involvement and support	2	142.66	<0.0001
Auditee co-operation and availability	3	479.08	<0.0001
Time available for planning	1	36.51	<0.0001
Understanding of risks (objectives)	1	185.01	<0.0001
Fieldwork			
Audit team experience and training	2	105.69	<0.0001
Time pressures (constraints)	3	167.12	<0.0001
Auditee availability and co-operation	2	220.53	<0.0001
Level of auditee documentation (automation)	2	224.34	<0.0001
Complexity (technical) of issues	2	182.15	<0.0001
Reporting and review			
Audit manager (supervisor) involvement and support	1	15.81	.0001
Audit team experience and training (emphasis on primary report writer)	2	201.40	<0.0001
Complexity (sensitivity of report findings)	3	139.68	<0.0001
Auditee co-operation and availability	2	12.16	0.0023
Timing of the report	1	6.32	0.0119

practising auditors in Phase II of the study. Two dimensions of usefulness were provided to facilitate participants' evaluations. The first dimension presented for evaluation was the 'strength' element that represents the relevancy and meaningfulness of the measure to the given audit quality factor being measured. 'Confidence' was defined as the second element and represents the precision, objectivity and feasibility of the given measure. Both of these dimensions were evaluated separately using a 0–5 scale. The values obtained for each of the two dimensions were multiplied to form a composite rating of measure usefulness⁴ that could range from 0 (both dimensions rated 0) to 25 (both dimensions rated 5).

Results of the individual composite usefulness ratings for each measure in the planning, fieldwork and reporting phases of the internal audit process are shown in Tables 6, 7 and 8 respectively. Readers are reminded that all these measures were individually considered as the best for the given audit quality factor by one or more of the six audit teams participating in the Phase I group processes. All these measures, therefore, are considered to have potential for being a useful indicator of internal audit quality. The benefit of additional

rankings by larger numbers of internal auditors is that external auditors can compare specific evaluations of internal audit work using measures that many internal auditors performing similar tasks consider to be most meaningful. The greater the average composite usefulness value for a given measure, the greater the overall belief among survey respondents that the measure provides a reliable indication of audit quality in most audit engagements. These results indicate primary agreement with SAS 500. There are, however, several noticeable discrepancies from the guidance provided in the SASs. More specific implications of these inconsistencies between the two sources are examined in the next section.

Discussion and implications

The first sections of this paper presented and compared recently adopted or proposed standards to guide external auditors in evaluating the quality of internal audit work. Many of the items recommended in SAS 500 and the other SASs for external auditor consideration are representative of internal audit quality output measures. The research results reported in the latter sections of this paper propose additional consideration of process oriented measures to aid external auditors in evaluating internal audit work. Comparisons of the empirical research results based on practising internal auditor responses with the four major

⁴The multiplication of the two items is recommended by Adam, Hershauer and Ruch (1986) and is based on the Expectancy Theory foundations for the development of the methodology.

Table 5
Magnitude Measures for Audit Quality Factors

<i>Audit quality factor</i>	<i>Magnitude measure</i>
Planning	
Audit team experience and training (emphasis on primary planner)	117
Audit manager (supervisor) involvement and support	101
Auditee co-operation and availability	80
Time available for planning	85
Understanding of risks (objectives)	153
Fieldwork	
Audit team experience and training	100
Time pressures (constraints)	81
Auditee availability and co-operation	105
Level of auditee documentation (automation)	86
Complexity (technical) of issues	115
Reporting and review	
Audit manager (supervisor) involvement and support	121
Audit team experience and training (emphasis on primary report writer)	121
Complexity (sensitivity) of report findings	124
Auditee co-operation and availability	89
Timing of the report	94

recommendations of SAS 500 Exposure Draft reveal many similarities and overlap, but also indicate differences of which external auditors should be aware.

Consider Internal Audit Activities (SAS 500.1)

The scope and objectives of internal audit functions are briefly defined in SAS 500.1. Results of this study provide greater specificity in the definition of internal auditing and provide external auditors with the knowledge that most internal audit engagements comprise three major phases with fairly consistent activities in the planning and fieldwork phases, but that objectives and activities in the reporting phase vary significantly between companies and engagements.

These results may not provide new knowledge to many external auditors, but are beneficial in confirming and/or adding to knowledge already used in evaluating internal audit work. There is, however, one additional organisational aspect of internal audit departments (groups), not discussed in the SASs but identified in the current study, that deserves additional consideration by external auditors. The political nature of the corporate environ-

ment was identified as affecting all audit assignments. SAS 500 recognises the importance of the internal audit group position within the organisational structure and clearly states that it must be 'free of any other operating responsibility'. The additional factor discovered in this research is that many companies follow the practice of rotating staff auditors to other organisational operating areas after three or four years' service in internal audit. In this environment, many staff level internal auditors feel much greater pressure not to issue negative reports for an auditee in an operating area where they may be transferred in future years.

Understanding and Assessing the Internal Audit Function (SAS 500.2,3)

General considerations recommended in SAS 500 include: organisational status; scope of function; technical competence; and due professional care. The additional listings of considerations in AICPA SAS 65 include: audit team experience; assignment of individual auditors; adequacy of audit programmes and procedures; supervision and review; workpaper documentation; and report consistency. Most of these factors were also recognised by the internal auditors in this study. It is interesting to note, however, that several of the SAS 65 recommendations were specifically considered by all six groups of internal auditors and subsequently excluded from the list of factors considered to have a critical impact on audit quality. The auditors' education level, professional certification and whether or not auditor relatives are at the audit site, were all considered sufficiently unimportant by all six groups of internal auditors to be excluded from a quality monitoring system. The question arises, therefore, of whether external auditor investigation of such matters is cost beneficial in evaluating internal audit work.

Perhaps of greater significance are the factors the group of internal auditors considered critical but which are not discussed in the SASs. For example, although external auditors recognise the importance of time constraints on external audits, neither the SAS 500 Exposure Draft nor the other standards compared with it mention this as a consideration of internal audit quality. Internal auditors agree that the amount of time budgeted and spent on different assignments has a critical influence on audit quality. Other factors not recognised by any of the SASs, but which internal auditors considered critical, include corporate political pressures, sensitivity of audit findings and the level of internal audit manager involvement with the on-site internal audit team. External auditors should also consider these factors when evaluating the extent of potential reliance on internal audit work.

Table 6
Mean Ratings for Audit Quality Measures (Planning Phase)

<i>Audit quality measure</i>	<i>Mean rating*</i>
Audit team training and experience (Emphasis on primary planner on the team)	
• No. of new staff on audit ÷ total no. of people on audit team	7.71
• No. years of planner's experience ÷ minimum years to planning position	9.35
• No. years of audit experience (total and in company)	12.34
• No. prior audits in area of current audit	12.39
Audit manager involvement and support	
• Did manager complete review of scope prior to fieldwork? (Y/N)	12.95
• Did manager attend opening conference with auditee? (Y/N)	8.44
• Did manager meet with audit team prior to fieldwork? (Y/N)	11.48
Auditee co-operation and availability	
• % of days auditee executive(s) on-site during first week	6.23
• Was access to desired auditee information available? (Y/N)	15.60
• Is auditee an ex-auditor? (Y/N)	4.72
• Do audit findings affect auditee's formal evaluation? (Y/N)	6.82
Time available for planning	
• Total hours used in planning ÷ scheduled hours for planning	7.87
• Total hours planning ÷ total audit hours	9.78
Understanding audit risks (objectives)	
• % risk analysis completed before fieldwork	12.20
• % audit programme completed before fieldwork	6.22

*A higher rating is better. Ratings above nine are considered to represent robust measures for audit quality factors.

Table 7
Mean Ratings for Audit Quality Measures (Fieldwork Phase)

<i>Audit quality measure</i>	<i>Mean rating*</i>
Audit team training and experience	
• No. of new employees on audit ÷ total no. of people on audit team	9.48
• % of audit team with prior audit experience in area of current audit	13.12
• Average number years audit experience of audit team	10.95
Time constraints	
• (Actual hours – scheduled hours) ÷ scheduled hours	7.95
• Overtime hours for fieldwork ÷ total hours for fieldwork	5.43
• Days from planned to actual completion of fieldwork	7.43
• No. of overtime hours in last two weeks of audit ÷ total hours worked in last two weeks	4.69
Auditee co-operation and availability	
• % of days auditee executive(s) and key personnel are at site during fieldwork	8.70
• Was formal (written) auditee feedback obtained? (Y/N)	13.84
• Type of previous audit opinion	7.07
Level of auditee documentation (automation)	
• Was access to desired auditee documentation available? (Y/N)	15.39
• Has auditee assigned a primary contact person? (Y/N)	10.60
• Are auditee data in electronic format? (Y/N)	8.04
Complexity (sensitivity) of audit	
• Dollar amount of questioned costs (recommended savings)	9.02
• No. of reported findings ÷ average no. reported findings	4.88
• No. of reported findings ÷ no. potential items in workpapers	5.31

*A higher rating is better. Ratings above nine are considered to represent robust measures for audit quality factors.

Table 8
Mean Ratings for Audit Quality Measures (Reporting Phase)

<i>Audit quality measure</i>	<i>Mean rating*</i>
Audit manager involvement and support	
• Days from receipt of draft to return of completed review	9.77
• Did manager attend final review meeting? (Y/N)	11.58
Audit team training and experience	
(Emphasis on primary report writer)	
• Years of audit experience (total and in company)	11.36
• No. prior audit reports written	11.68
• Years of audit experience ÷ minimum years to report writing position	7.25
Complexity (sensitivity) of findings	
• Is report issued to higher than normal level? (Y/N)	11.70
• No. of conference attendees above auditee level	7.21
• Is an ethics violations involved? (Y/N)	11.02
• Dollars of questioned costs (recommended savings)	10.22
Auditee co-operation and availability	
• Are audit results part of formal auditee evaluations? (Y/N)	7.47
• Type of previous audit opinion	6.70
• No. of rebuttals at final opinion	8.02
Timing of report issuance	
• Days from informal exit conference with auditee to issuance	10.96
• Days from end of fieldwork to issuance	11.35

*A higher rating is better. Ratings above nine are considered to represent robust measures for audit quality factors.

Evaluating Specific Internal Audit Work (SAS 500.4)

General considerations listed in SAS 500.4 include the supervision of assistants, conclusions reached, reports prepared and resolution of internal auditors' findings. Factors that are both identified in this study and mentioned for consideration by the SASs include the scope of audit programme and procedures, workpaper documentation, and consistency of report conclusions with audit findings. A caveat is necessary, however, when external auditors review internal audit reports. The current study has concluded that while many similarities exist between internal audit groups in the planning and fieldwork phases on internal audit assignments, there is a wide variety of reporting formats and purposes in different entities and in different types of internal audit engagements. External auditor consideration and review of internal audit reports should recognise such differences, especially because the reporting phase is considered to have the greatest overall impact on audit quality.

Another aspect of audit quality internal auditors surveyed in this study considered critical—auditee attributes—is approached from a different perspective in the SASs. The risk, materiality and subjectivity associated with a given work area are discussed in general in the SASs and overlap many of the internal auditor concerns identified in this study. Above and beyond the areas of general

concern, internal auditors recognise that the timing, co-operation and availability of key auditee personnel further affect the ultimate quality achieved by the internal audit process.

The final, and most important, difference between SAS 500 Exposure Draft guidance and that recommended in the current study deals with specific measures of internal audit quality. SAS 500 does not list or recommend any quantitative measures of internal audit quality or any re-performance of internal audit testing. There is an implication that external auditors are better served by broad and general considerations that lead to a qualitative judgment of internal audit quality. The current study identifies and evaluates 45 specific measures for use in comparing quality between engagements. It is not recommended that internal or external auditors should invest the time or resources to track all 45 of these measures across internal audit engagements. External auditors may, however, wish to select only a few of these 'best' measures to be tracked across the internal audit engagements for which they have evaluation responsibilities. It is critical that the reduced set of measures are comprehensive of the total audit engagement. If the measures are believed to be robust, even one or two measures from each of the audit phases (planning, fieldwork and reporting) could provide reliable and comprehensive quantitative assessments of engagement quality. We firmly believe that relatively few but

comprehensive quantitative measures used for common comparisons between engagements will result in improved evaluations and greater adequacy of corresponding documentation.

Conclusion

This study's overall conclusion is that empirical data collected from six internal audit groups representing a wide variety of industries and subsequently evaluated by a large sample of internal auditors identify a comprehensive set of audit quality considerations separate from those listed in the SASs. Comparisons of the two sets of factors (considerations) indicate that:

- many of the considerations listed in SAS 500 are confirmed by the empirical data collected from practising internal auditors;
- some of the items suggested in SAS 500 and the other SASs are not considered critical by internal auditors—efficiencies may be gained if these factors are not evaluated by external auditors; and
- several factors that internal auditors believe to strongly influence the quality of their work are not suggested by SAS 500—audit effectiveness may be improved if these factors are evaluated.

Other important questions are not directly addressed or answered by this research. It has been pointed out that IAPC standards require re-performance of internal auditors' work before placing reliance on it, but SAS 500 does not even recommend re-performance. If specific work is not re-performed, what constitutes an adequate basis for reliance on internal auditors' work? Alternatives include: review of IA working papers; review and discussion of findings written for the auditee; or a special report by internal auditors for the external auditors similar to that from other professional experts such as petroleum engineers or surveyors.

Another recent development has been in contracting out (outsourcing) some or all of the internal audit functions. When such activities are contracted out, especially to the external audit firm, does the quality evaluation need to take a different form? Should ethical issues of independence between internal and external auditors override quality issues when the external auditor is determining the extent of reliance on internal auditors' work? Consideration of additional factors identified and rated in this study should

provide an improved and expanded basis for the evaluation of the work of internal auditors, by external auditors, regardless of the situation in which it is taking place. The list of factors to be considered is organised in a logical order in the internal audit process sequence. These factors provide a more comprehensive and detailed view of the internal audit process while adding the ability to compare empirically determined measures of internal audit quality across the engagements in which evaluation responsibility is present. As always, the ultimate decision must rely on the judgment of the professional auditor.

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Book Reviews

Twentieth-Century Accounting Thinkers. John Richard Edwards (ed). Routledge, London, 1994. xvii + 374 pp. £50.

In this compendium Professor Edwards has provided us with an invaluable biographical research record, a major contribution to our recognition of the tradition of accounting thought and a fascinating insight into the lives and work of a considerable variety of accounting writers. Foremost the reader is offered a hitherto unavailable picture of major writers whose names may have been more or less familiar and also of writers whose names may not have been familiar to the reader at all.

Twentieth-century Accounting Thinkers provides papers on 19 major authors (or groups of authors) written by biographers resident in their countries of origin. The profiles include Chambers, Mattessich, French accounting theorists of the 20th century, Saario (the developer of Finnish accounting theory), Schmalenbach, Schmidt, Limperg Jr (contributor to Dutch accounting and auditing), Zappa, Iwata, Kurosawa, Kimura, Dicksee, de Paula, the LSE group, Stamp, Hatfield, Paton, Blough and MacNeal. Of these profiles, four relate to US writers, four to UK writers, three to Japanese writers, six to European writers, one to a Canadian writer and one to an Australian writer.

The text celebrates the appearance 500 years ago of Fra Pacioli's *Summa* and is stated by the editor to be an anthology of biographies of accounting thinkers intended to fill an important gap in the accounting literature. The nature of that gap might have been articulated in a little more detail, but it is sufficient for the reader to deduce (if they are familiar with accounting history literature) that there has been a relative paucity of published studies of the lives and works of major accounting writers. Certainly this text makes a very commendable beginning to addressing that gap.

The criteria for the selection of profiled writers is not specified. However, the editor does point out that selection was made from those who had made their major contribution to accounting theory by about the 1970s. This was done in order to allow space for development of a consensus about the weight of their contribution. Two brief comments may be made in this regard. First, in the foreword to this text, Professor Solomons notes his disappointment that the critical theory school accounting thought, admittedly a more recent

phenomenon, is entirely unrepresented. The reviewer tends to agree with this comment, recognising that a cut-off date of the 1970s would have militated against the selection of critical theory authors whose work has largely achieved prominence since the mid-1970s. Second, the alleged intention of allowing space for developing a consensus about the weight of writers' contributions does not appear to have happened. It is disappointing that the editor himself has provided no overview, analysis or comparison of the biographies presented in the text. This reviewer found himself almost instinctively attempting that task during the reading of the text. Across the various biographies can be drawn a fascinating and instructive array of commonalities and differences between the thinking and lives of those under study. A critical review paper at the end of the text by the editor would have been a most welcome addition.

Most of the papers were purpose-written for this text although some are reprints of previously published work. The editor states that he suggested a format to all authors that included the provision of a portrait of the person, a review of their ideas and theories, some reference to their impact on accounting theory and practice, and a discussion of major influences on them. This was a recommendation rather than a compulsory format. Nevertheless, in this reviewer's opinion, it offered authors a most useful method of analysis and write-up and has indeed been followed by many of them. Most authors included a portrait of their subject, and a discussion of the subject's ideas, theories and impact on accounting thought and practice. Nevertheless, it must be observed that quite a few portraits were rather brief. Also, discussion of their ideas was not particularly well linked to an assessment of influences on the subject's ideas and theories. Cultural, economic and socio-political influences on the subject were often treated only briefly, if at all by quite a few authors.

Two papers seemed a little 'out of step' with the other contributions. The paper on Kimura occupied only eight pages of text, and the paper on Saario was virtually exclusively concerned with the subject's writings (as against the other aspects the editor had suggested be covered).

A number of papers stood out as fine examples of biographical writing for varying reasons. Gaffikin's paper on Chambers offers a detailed,

personal and critical insight into the man and his work. The papers on Dicksee and de Paula offer examples of the striking of balance between the analysis of the person, their career and their writing (compared to other papers that focused more heavily on writing rather than person and career). Camfferman and Zeff's paper on Limperg Jr is a good example of an integration of analysis of the individual, their work and writing, and their impact. Similarly, the paper on Kurosawa offers a well integrated discussion of the writer as an individual, his work, and his socio-economic environment. Mumford's portrait of Stamp offers a vibrant portrait of the man, his life and views. The author wields his pen in such a fashion that the subject comes alive from the pages. Finally, Zeff's paper on MacNeal offers the reader a fine example of a scholarly, detailed biography of the person, his major book, its environmental setting and impact. Such papers offer role models to any would-be accounting history biographer.

It should be a matter of increasing concern to those who occupy leadership positions in academic accounting internationally that an ever-expanding number of accounting graduates and indeed accounting lecturers are by dint of the passage of time, becoming unfamiliar with the contributions to their discipline of major accounting thinkers, even during the past 100 years. To both enhance our professional tradition and to ensure that invaluable lessons of history are not lost, it is essential that this problem be addressed. Professor Edwards has made a most significant and praiseworthy contribution to addressing this very issue. His text offers excellent source material for further biographical research in accounting thought as well as for use by the classroom teacher and the presenter of papers at professional accounting conferences. That this contribution reflects the work of writers across many countries is all the more commendable. This text is an absolute essential for not only the library shelves but for the bookshelves of professional firms, accounting history writers and mainstream accounting course lecturers. In addition to such laudable utilitarian ends, it also has a fairly unique distinction for an accounting text of being a damn good read!

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Lee D. Parker

The Audit Explosion. M. Power. Demos, 1994. 58 pp. £5.95

Mike Power begins by highlighting the important role now accorded to audit in almost all walks of life. He then makes eight observations regarding this phenomenon. First, that despite differences in context and meaning, there is a common thread to

the new uses of the word 'audit'. Second, that audit is not just a series of technical practices but must be understood as an *idea*. Third, that the spread of audits corresponds to a fundamental shift in patterns of governance in advanced industrial societies. Fourth, that the pervasive feature of the new wave of audits is that they work not on primary activities but rather on other systems of control. Fifth, that audits do not contribute automatically to organisational transparency. Sixth, that audits have the remarkable capacity of being invulnerable to their own failure since failure usually leads to calls for more auditing. Seventh, that audit is not passive but actively shapes the activities it is intended to control. Eighth, that notwithstanding the dominance of audits there are other ways of achieving accountability.

The first seven observations are insightful, timely, well made and supported by interesting references. It is the articulation of the 'other ways' of achieving accountability that could be the Achilles heel, Power's argument being for a broad shift in control philosophy from 'long distance, low trust, quantitative, disciplinary and ex post forms of verification by private experts to local, high trust, qualitative, enabling, real time forms of dialogue with peers'. Power dubs the former control philosophy as style A and the latter as style B.

Looking to the future, it is not clear that these two 'bundles' of factors are the only possible combinations, or even that the two bundles are internally consistent. For example, Power associates high trust with real time control and low trust with ex post long distance verification. However, it is also plausible that real time control reflects an (initial) low level of trust but that if trust in the auditee grows through regular contact, ex post control at a distance becomes possible. Thus, trust becomes one of the 'dynamics' of auditing requiring the audit style to be flexible in response to changing conditions. In my view there is too much emphasis on audit's potential to displace trust and not enough on its potential to generate or sustain trust. It is also arguable that ex post control at a distance gives greater freedom to the auditee than does real time control. If so, the allocation by Power of 'discipline' to style A and 'enabling' to style B might be challenged.

It is not clear to me that ex post control need only be quantitative or that real time control will always be qualitative. Nor is it clear that control through quantitative performance measures will be private whilst qualitative performance measures associate with public dialogue. Indeed, in company audits it is arguably the reverse, with qualitative performance being reported privately to directors. It is also arguable that the two end points for each factor listed under style A and style B, mask a number of potentially valuable possibilities in the middle of the range. In short, I think we have a fair

richer field of possibilities than the style A/B dichotomy represents.

Power rightly points to the limitations of agency theory, though agency theory does focus attention on three key relationships being (1) shareholder (stakeholder) with management, (2) shareholder (stakeholder) with auditor and, (3) auditor with management. The style of each relationship has implications for the style of the others and at times I am not clear which of the relationships Power's analysis is addressing. Presumably he sees a pure style B as internalising the audit function within the shareholder/stakeholder to management relationship. However, anything less than style B, and certainly style A, requires a consideration of three sets of relations.

Power does not take us beyond a description of style B to a consideration of the environmental factors that need establishing in order to sustain style B relations. These environmental considerations include the formal constitutional arrangements for organisations (and auditors if they are to survive in Power's model). The economic incentives embedded in these arrangements do have to be considered.

As a final thought, Power's analysis does not examine in detail another social trend—litigation, consumerism and the desire to protect stakeholders against risk. This is a major environmental factor for company auditors, clearly affecting the style of auditing. We have yet to see the possible impact of litigation on auditing styles elsewhere, especially in the public sector where the fundamental shift appears to be for the government to adopt financial control while passing responsibility for quality over to management (and auditors?).

To conclude, I am a little nervous of observations made in the immediate aftermath of an audit 'explosion' when audits are imposed for the first time into pre-existing accountability relationships, particularly as it is in these circumstances that the auditee is most likely to feel distrusted, with significant behavioural consequences. Such observations may not hold for the long term. Nevertheless, I thoroughly enjoyed reading *The Audit Explosion* and I instinctively sympathised with nearly all of it. My criticisms relate to the straitjacket of limiting the possibilities for the future into two lists marked style A and style B!

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David Hatherly

Depreciation: The Time for Change. Anthony Carey. Research Board, ICAEW, 1993. 116 pp. £15.

The monograph is a product of a study undertaken by the secretariat of the Institute of Chartered

Accountants in England and Wales Research Board at the request of the Accounting Standards Board. Anthony Carey has also in the past worked for the Accounting Standards Committee and is therefore no stranger to the development of proposals for accounting regulations. Perhaps these facts are the ones which give the study the potential for special interest.

There are three parts to the book. First, Carey 'examines the conceptual issues that have to be confronted when accounting for depreciation'. Second, there is a description of findings from a number of structured interviews (involving some preparers and users of accounts) and of a survey of published accounts of 300 companies. Third, a section 'The Way Ahead' makes recommendations.

The structure of the monograph looks appropriate, but on the whole this academic reviewer was disappointed with much of the content. In my opinion, it lacks the authority provided by a convincing and consistently applied theoretical framework, which might have been presented in the first section on 'Principles'. Apart from references to a paper in *Accounting and Business Research* and to Baxter and Solomons, the monograph is largely based on a few articles in *Accountancy*, on governmental reports and on reports commissioned or published by professional accounting institutions. Thus the extensive and potentially illuminating literature on depreciation has not been used in the work. The limited range of literature to which Carey refers has importance, but falls far short of an adequate coverage of relevant ideas. His thinking seems to rely extensively on the judgments of the few authors he quotes. This results in the lack of deductive analysis from first principles. In consequence, the discussion concentrates on practical issues without the support of a developed theoretical framework.

Although Part 1 is disappointing in some respects, it has interesting examples of some of the practical problems in the area of depreciation. These would have been even more worthwhile if the discussion had clearly distinguished between the 'matching' based definition of depreciation of IAS 4 (reproduced on p. 16 of the monograph) and the 'valuation' approach of SSAP 12. This failure to differentiate clearly between the matching and valuation approaches is not confined to Carey, however. It seems to be present in the writing of a number of eminent authors and institutions. Yet the differences in the approach seem to be fairly obvious. Matching represents outlays as costs to be recovered from the cash inflows which they generate in proportion to the scale of those benefits. Admittedly, in accounting for fixed assets, allocations in practice seem to be arbitrary—but such allocations can be made on bases that are not arbitrary.

In contrast, valuation approaches attempt to establish the worth of a business or, in the context of individual assets, of an asset at a point in time—gain or loss being the change in worth between valuations. Such approaches by definition do not allocate cost, for the initial outlay is nothing more than the starting value in a series of valuations. It is likely that valuation approaches yield useful information. If they are to be used, however, they need to be applied in a coherent valuation-based system, not mixed with matching approaches with which they are incompatible. Although the monograph acknowledges that historical cost accounting and revaluation may not be compatible, it recommends that current values be integrated into conventional accounting.

While revaluation in matching-based statements can be justified by reference to stated objectives (see, for example, Grinyer, *Accounting and Business Research*, Winter, 1987), that was not done in the monograph. Carey seems to adopt valuation accounting concepts as arguments for using current values in matching-based accounts, which destroyed the credibility of much of his theoretical argument for this reader.

The section of the monograph outlining the findings of the survey of practitioners' views and the analysis of a sample of company accounts was interesting. No attempt was made to apply statistical analysis, so the review is purely descriptive. There are, however, some worthwhile international comparisons and some useful examples of particu-

lar practices. Although only 30 pages long, this section is probably the most valuable contribution of the booklet.

Part three of the publication is entitled 'The Way Ahead' and is the shortest of the sections. It outlines five 'principles' that should be used in the development of future standards. These are drawn from the earlier discussions on 'principles' and 'practices' and are supported by reference to a variety of practical considerations. It may be that Carey's intuitions are correct and that he has pointed to the most helpful direction for future regulations concerning depreciation. This reviewer was unconvinced, given the absence of deductive arguments and evidence which led him to revise his *own* prior perceptions!

Academics will find the monograph an interesting insight into the type of practitioner oriented thinking that may underlie the process of accounting regulation. They may also share the reviewer's disappointment because of the lack in the study of a reasonably comprehensive review of the literature and of convincing deductive reasoning from identified first principles. Both practitioners and academics will note some interesting examples. Readers should, however, be warned that acceptance of Carey's conclusions may be an act of faith in his judgment rather than acceptance of an adequately identified chain of reasoned logic.

University of Dundee

John R. Grinyer

Guide for Authors

General

Papers should be in English and consist of original unpublished work not concurrently being considered for publication elsewhere. They should be typed and double-spaced. *Four* copies should be submitted together with a submission fee of £18 for subscribers or £36 for non-subscribers. In order to ensure an anonymous review, authors should not identify themselves directly or indirectly. Experience has shown that papers which have already benefited from critical comment from colleagues at seminars or at conferences have a much better chance of acceptance.

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Watts, R. L. and Zimmerman, J. L. (1986), *Positive Accounting Theory* (Englewood Cliffs, NJ: Prentice-Hall).

Style and spelling

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Management Aspiration and Audit Opinion: Fixed Asset Accounting at the Staveley Coal & Iron Company 1863–1883

Trevor Baldwin*

Abstract—In discussing the form and content of published financial statements prior to 1900, J. R. Edwards argues that, in a *laissez-faire* environment, management is free to choose those accounting principles and practices providing maximum utility, given the goals of the organisation. This paper examines the approach to the problem of choice, in the area of fixed asset accounting and reporting, adopted by the board of directors of the Staveley Coal & Iron Company Limited during the 20-year period following its incorporation in 1863. The paper concludes that substantial freedom of action was available to the directors in this respect in spite of the retention of a prestigious and highly qualified external auditor, plus the engagement, from time to time, of an expert engineering consultant.

Introduction

In discussing the form and content of published financial statements prior to 1900, J. R. Edwards points out that, in a *laissez-faire* environment, management is free to choose those accounting principles and practices providing maximum utility, given the goals of the organisation (Edwards, 1989, p. 109). Paramount, perhaps, among the accounting choices available to management, prior to 1900, was the methodology to be applied in valuing and reporting fixed assets and, associated with this, policy decisions concerning the identification of capital expenditure and the nature and measurement of depreciation. This was certainly so in the case of the coal and iron industry (Wale, 1990). This paper examines the approach to the problem of choice, in the area of fixed asset accounting, adopted by the board of directors of the Staveley Coal & Iron Company Limited (Staveley) during the 20-year period following its incorporation in 1863.

Two characters, in particular, appear to have played major roles in shaping the financial reporting function at Staveley during this period: Charles Markham, the managing director, and David Chadwick, the financial agent responsible for the company's initial formation and, subsequently, its auditor. Conflict between the two culminated in the qualification of the 1883 auditors' report, leading to '... a head-on clash between Markham

and Chadwick [at the 1883 OGM] over accounting procedures; the outcome was that Chadwick was not reappointed auditor' (Chapman, 1981, p. 75). The 'accounting procedures' in question were, perhaps not surprisingly, those concerning the treatment and presentation of capital expenditure in the company's annual balance sheet. Before proceeding to a detailed examination of the Staveley accounts it is important to understand a little of the background and aspirations of these two men.

Charles Markham (1823–1888) was, by training, an engineer. Like David Dale at Consett, his early years had been spent, with some celebrity, in railway enterprises of one kind or another. He was a militant anti-trade unionist and, in the words of his daughter Violet: 'He was a ruler in every sense of the term, in his business and in his home' (Chapman, 1981, p. 73). His attitude in matters of company finance appear to have been prudent in the extreme. On several occasions during his years at Staveley he crossed swords with Henry Pochin (the chairman) and other directors who wished to fund expansion by further borrowing; a course to which he was totally opposed.

With regard to the company's fixed asset accounting policy, whether as a result of his early experience in railways or of his own in-built conservatism, he appears to have favoured a form of *replacement accounting* (Edwards, 1989, p. 114) linked to his own clear concept of *physical capital maintenance*. In short, he was always painfully aware of the wasting nature of the assets in a mining enterprise: 'You must not fail to remember that in a company like this getting nearly a million tons of coal per annum there is an enormous waste going on, and unless a large and liberal expenditure is maintained you must be going to the bad...'

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(minutes of General Meeting No. 2, p. 89, SA:39/80/13†). Not 'going to the bad' in Markham's eyes was far more a matter of maintaining the total physical capacity of the company, in terms of coal below ground and still to be got, than of any money measure of its fixed assets.

David Chadwick (1821–1895) was a professional accountant. In 1844 he was elected treasurer of Salford Corporation; a post which he retained until the formation of his own accountancy practice in 1860. He opened offices in Manchester, and later in London. For some years he was president of the Manchester Statistical Society, a founder member of the London Institute of Accountants, and the first president of the Manchester Institute of Accountants. He also became one of the first council members of the Institute of Chartered Accountants in England and Wales in 1880.

Between 1862 and 1874 Chadwick was involved in the formation of at least 47 limited companies, in many cases acting on behalf of a group of Manchester businessmen led by Alderman Henry Pochin (1824–1895), a Salford manufacturer of heavy chemicals. This same group were responsible for the incorporation of a dozen or so companies, notably in steel, iron and coal, during the 1860s including Staveley, John Brown & Company and Bolckow Vaughan & Company. Chadwick was also a Member of Parliament from 1868 to 1880 and in this context specialised in matters relating to company law reform. In short, 'Chadwick was no ordinary accountant' (Cottrell in Jeremy (ed.), 1984, p. 626).

Against this background, the aims of the paper, for the period under review, are threefold:

1. To summarise capital expenditure movements at Staveley by reference to the published balance sheets and underlying accounting books and records.
2. To examine the nature of the external audit process at Staveley and the circumstances surrounding the qualification by the auditors of their report to the 1883 OGM.
3. To establish the extent to which Edwards' 'utility' thesis can be seen to apply to the way in which fixed assets were reported in the published financial statements of the company.

Capital expenditure at Staveley

Initial valuation

Staveley was incorporated on 29 December 1863 following the arrival of the second Limited Liability Act on the statute book in the previous year. By this date plans were already well advanced for:

'... the purchasing, leasing, or otherwise acquiring of certain Coal and Iron-Stone Mines, situated at Staveley in the county of Derby, and now in the occupation of Richard Barrow Esquire, of Staveley aforesaid...' (Memorandum of Association—24 December 1863, SA:39/72/2).

On 10 July 1863, Barrow had instructed William Armstrong, a mining engineer of Wingate Grange, Co. Durham, to prepare a valuation of the 'Staveley Properties'. Armstrong's subsequent reports, dated 25 August 1863 and 15 April 1864, valued the fixed assets, in total, at £392,067 and this appears to have been adopted without amendment by Barrow and the promoters of the company. The figure was made up of:

	£
Collieries	277,300
Ironworks and ironstone pits	49,729
Cottages	61,287
Freehold land	3,751
	<u>392,067</u>

The level of sophistication employed by Armstrong in his valuation of the fixed assets at Staveley is worthy of note. In general terms his technique, in valuing the collieries for example, consisted of estimating the likely annual tonnage that could be extracted from each pit over the remaining years of its useful life (generally the remaining years of the relevant mineral extraction lease). This was then converted into money terms using a factor of '... profit per ton which over the remaining years of the term in each colliery will be realised one year with another upon the gross sales from each pit...' (SA:39/45/3). The annual profit flows thus generated were subsequently regarded as annuities, the present value of which was established by discounting them at a rate of either 12% or 14%.¹ Thus, Armstrong, in common with other business valuers of the period (Edwards and Warman, 1981), appears to have been perfectly comfortable with the concepts of discounted cash flow and present value; techniques to which he was to return in later reports for the company, particularly on the subject of depreciation.

The transaction relating to the purchase of the Staveley operation from Richard Barrow was integrated into the financial records of the company via a journal entry dated 30 June 1864; the final day of the company's first accounting period. While the company, from its inception, maintained a separate 'private ledger', details of fixed assets and their movements were not recorded within its

†The Staveley Archive has recently been relocated, and is now situated at the Derbyshire Record Office, Matlock, Derbyshire DE4 3AG.

¹While copious technical explanation is given in the reports of the derivation of estimated annual tonnages and annual profits per ton, justification for the choice of discount rates, which appear to be high in the context of the times, is not evident.

pages. Instead, for this purpose, the company maintained a specifically designated 'capital ledger'. Here, separate accounts were opened for 'Collieries', 'Ironworks', 'Land & Cottages' and 'Freehold Land' each of which was debited with the relevant proportion of Armstrong's total fixed asset valuation.²

Additions and Disposals

Details of additions and disposals of fixed assets by the company over the 20-year period from its formation are given in Appendix 1. Disposals were, with one notable exception, dealt with on a 'cash flow basis', i.e., the amount credited to the relevant fixed asset account was, in fact, the amount of the sale proceeds generated, rather than the net book value of the asset sold. The one exception to this rule occurred during the year ended 30 June 1867, when a stretch of the company's railway property was sold to the Midland Railway Company for £29,789. Of this sum the company chose to credit only £6,000 to the relevant ('Collieries') fixed asset account, leaving the balance to be transferred to a 'suspense account'. The suspense account appeared, as a separate item, on the 'capital and liabilities' side of the June 1867 published balance sheet.³

Pochin explained to the meeting that the figure of £6,000 was generally in line with Armstrong's original valuation of the property in question, and that the balance represented a profit to the company. Various propositions for the treatment of the suspense account were discussed, but in the end it was unanimously agreed that the sum be used to set against future capital expenditure in relation to a '...new sinking at the Waterloo Pit...' and '...developing the North Staveley property...' (Minutes of General Meeting, Vol. 1, pp. 38–40, SA:39/80/12). Thus the suspense account was written off (in a quite overt fashion, with details of annual appropriations appearing on the face of the published balance sheets) between June 1868 and June 1871 (see Appendix 2). That a resolution to utilise the profit on sale in this way should lead, ultimately, to the creation of a 'hidden reserve'⁴, seems not to have exercised the directors or auditors unduly.

A further, and altogether more substantial, example of the overt write-off of capital expenditure to reserves occurred between 1875 and 1883. In this case a 'reserve fund' of some £160,000, which had

originally been created out of the profits of the boom years of 1873 and 1874, was subsequently extinguished by annual transfers to 'New Works' (see Appendix 2). This decision appears to have been one with which Chadwick was far less happy and was taken up by him, in retrospect, at the 1883 OGM.

Depreciation

The attitude adopted at Staveley towards depreciation appears, from the outset, to have been somewhat avant-garde. The Companies Act 1862 made no reference to depreciation and, generally speaking, by the mid-1860s, '...no measure of agreement had been reached, either in theory or in practice, regarding the appropriate method of accounting for capital expenditure' (Edwards and Webb, 1982). Furthermore, 'the first important book on depreciation', Ewing Matheson, *The Depreciation of Factories*, was not to be published until some 20 years later, in 1884 (Lee and Parker (eds.), 1979, p. 198).

At Staveley, however, there appears to have existed, from the very beginning, a desire to come to terms with the problem of depreciation.⁵ As early as June 1865, a depreciation fund was established and subsequently augmented by regular annual appropriations from profit. On the balance sheet the depreciation fund was deducted from the value of fixed assets, while in the books of account, throughout the period until 1883, the depreciation fund was separately maintained in the private ledger, rather than in the capital ledger with the assets to which it related.

Further evidence of the directors' serious intent with regard to depreciation provision is apparent from a resolution of the Board dated 29 July 1867. Under the terms of this resolution the services of William Armstrong were again to be sought; this time to report, specifically, on the question of depreciation. The principle adopted by Armstrong in his copious first report on this topic, dated 7 December 1867, was:

'That your purchase money for the Collieries & Iron Works...with the additional expenditure since made by you and placed to "Capital Account"... should by an annuity debited annually against Profit & Loss suffice to recover all your outlay when your interest ceases—Your object being...[to] put by as a sinking fund such a sum as shall at all times keep the Capital Value of their property intact.' (SA:39/45/3).

²The opening entries bear the initials 'DC', in red ink, evidencing the fact that David Chadwick was already personally involved with the audit of the company's financial records.

³To the apparent confusion of some shareholders present at the OGM, including, according to his own admission, Henry Pochin (Minutes of General Meeting, Vol. 1, pp. 36–37, SA:39/80/12).

⁴For the purposes of this paper a 'hidden reserve' is deemed to arise from the overt charging of a capital spend against an existing reserves fund or against profit, and a 'secret reserve' as a similar phenomenon, but created by covert means.

⁵The first annual report of the directors, dated 22 August 1864, speaks of gaining, '...sufficient experience of the wear of the Works at Staveley to determine the amount necessary for this purpose [depreciation]'.

Given the methodology adopted by Armstrong in his initial valuation of the Staveley works, the recommendation, in this report, that depreciation be based on a form of sinking fund annuity, is hardly surprising. The report calculated that a figure of some £14,803 would need to be provided for depreciation in the year to 30 June 1868, based on an interest rate of 4% per annum.⁶

Markham appears, at first, to have reacted very favourably to the report. On 9 December 1867 he wrote to Armstrong: 'We think the principle of your report is correct in every way' (Copies of Correspondence, SA:39/45/3). It is questionable whether his enthusiasm was entirely altruistic, however. He doubtless saw depreciation as a financial device that would help him to fulfil his own personal agenda: 'no one has been more anxious than myself to keep down the capital account'. Further consideration of Armstrong's report seems to have tempered his early enthusiasm and following 12 months of debate a revised report was submitted by Armstrong to the directors on 11 August 1869. In principle Armstrong remained unmoved. The sinking fund method of depreciation was still that which he advocated, although this time, no doubt in deference to his audience, he calculated the precise depreciation charges required over a full five-year period from 1869 to 1873. The percentage rate to be used in the calculation of interest on the fund was adjusted upwards from 4% to 6%, a point on which Markham had been adamant, and, perhaps most surprisingly, a recommendation in the original report that only items in excess of £500 should be capitalised was amended to items in excess of £50. Armstrong reiterated his personal discomfort with this final point.

The depreciation provisions made in the accounts of the company for the five years from year ended 30 June 1869 to 1873 (see Appendix 1) mirror, very closely, those recommended in Armstrong's final report.⁷ From the year ended 30 June 1874 however, when the directors reverted to a round sum provision of £13,000, the methodology becomes less clear. In the years ended 30 June 1875, 1876 and 1877, the non-round nature of the provisions may indicate a return to the sinking fund method; or perhaps simply the charging of interest, in some way, on sums previously accumulated. In any event, from 30 June 1878 all attempts to provide for depreciation with any degree of sophistication appear to cease. A round sum provision of £10,000

a year is consistently made for the remainder of the period under review.

Revaluation

A final, and highly significant, event in relation to the valuation and reporting of fixed assets at Staveley occurred on 28 April 1873. On that date an extraordinary general meeting was held at which it was resolved:

'That to the nominal values of the Company's property, as stated in the Balance Sheet on 29th June, 1872, there be added the sum of £391,000, thus raising the sum of £472,781. 13s. 3d. to £863,781. 13s. 3d., and that a like sum of £391,000 be applied in increasing the nominal Capital of the Company...' (Minutes of General Meeting, Vol. 1, p. 124, SA:39/80/12).

Pochin outlined the reasons behind the proposal as being twofold. First, since the time of Armstrong's original valuation, some 10 years previously, substantial extensions had been negotiated in the length of the company's coal extraction leases, particularly from the Duke of Devonshire, '...so that the value of the property had been considerably increased by these new leases...'. While this alone may have been considered reason enough for a revaluation of the company's fixed assets it does not, of itself, explain the apparently quite precise figure of £391,000 to be applied in this respect. No valuer's report or other expert opinion is evident at the time and the most likely explanation would seem to be linked to the second point which Pochin made to the meeting:

'There was another and very important reason which had considerably influenced the Directors in submitting the Resolutions to the Shareholders, and that was that the published Balance Sheets got circulated widely, and it became known to others besides the Shareholders what dividends the company were paying, and the workmen had made use of this knowledge as a handle to secure their demands, and Mr. Markham had been met on this point when negotiating terms and wages with the workmen of the Company, so that it was desirable to pay a less percentage on a greater amount of Capital' (Minutes of General Meeting, Vol. 1, p. 126, SA:39/80/12)

The figure of £391,000 in fact represented, precisely, a doubling of the company's issued ordinary share capital.

The balance sheet at 30 June 1873, as usual, showed only a single figure for fixed assets under

⁶There is also an implication in the report (although no specific recommendation) that the amount of the sinking fund might be invested outside the company rather than, 'that it existed in the financial firmament of the general properties' (SA:39/45/3).

⁷With the exception that no charge appears to have been made in the 1872 accounts; but this is compensated by a two year charge in 1873.

the heading, 'Collieries, Properties, Ironstone Mines, and Iron Works, as per Valuation, June 30th 1873'. To the text, however, was added the further wording, '...with addition of £391,000 for estimated increased value, as per Resolution of 28th April 1873'. In the capital ledger a new account, 'Plant a/c', was opened to accommodate the £391,000 debit entry resulting from the revaluation. Significantly, this entry is again initialled 'DC' (David Chadwick), in red ink, and is accompanied by a short note of explanation in Chadwick's hand, '(being Estimated increased value of Properties & Plant as pr. Resn. of Shareholders Apl. 28/73)'. As auditor, Chadwick appears to have approved of the method and magnitude of the revaluation; the 1873 accounts were signed off by him without comment. The revaluation does however appear to have remained a bone of contention and, again, was resurrected by him some 10 years later at the 1883 OGM.

The audit process at Staveley

Incorporation by registration was first made possible by the Joint Stock Companies Act 1844. The Act called for the compulsory audit of all companies formed under the legislation, although the auditor was not required to be independent of management or to be a qualified accountant. The concept of limited liability for registered companies did not exist at this time, being introduced some 11 years later, in the Joint Stock Companies Act 1855 (Edey and Panitpakdi in Littleton and Yamey (eds.), 1956).

Perhaps somewhat surprisingly, so soon after the introduction of limited liability, the Companies Act 1856 abandoned the concept of compulsory audit. In its place was left, within the voluntary provisions of Table B (the model Articles of Association) the facility for the appointment of an auditor in general meeting. The subsequent consolidating Companies Act 1862 retained this provision and the promoters of Staveley chose to avail themselves of the facility. Clauses 122–132 of Staveley's original Articles of Association contain the rules relating to the appointment, rights and duties of auditors (SA:39/73/2). The clauses are quite short and their main points are summarised as follows:

Clause	Contents
122	Audit at least once in every year of accounts.
123	First auditors: David Chadwick and James Coleman.
125	Auditors may be shareholders but not serving officers of the company.
126	Election of auditors at ordinary general meeting each year.

132 Auditor shall certify *correctness* of balance sheet and accounts.

For the first two years of account, to 30 June 1864 and 1865, the auditors' report at the foot of Staveley's published balance sheet takes the form of a very curt, 'Examined and found correct', and is signed by J. E. Coleman and David Chadwick. For the year ended 30 June 1866 this changes to the equally pithy, 'Audited and found correct', and is signed on this occasion, 'Chadwick, Adamson & Co.'. Following this a 'house style' seems to have been established and while the name of the firm of auditors changes from 'Chadwick & Co.' (1867), to 'Chadwicks, Adamson, Collier & Co.' (1868–1876), and finally to 'Chadwicks, Collier & Co.' (1877–1882), the wording of the report remains unaltered:

'GENTLEMEN,

We beg to report that we have examined the Balance Sheet and Accounts of your Company for the year ended June 30th last, and have certified the same to be correct.

We are yours obediently'.

Two points of commonality throughout the whole of this period may be noted. First, the auditors' continued satisfaction with the 'correctness' of the balance sheet and accounts and, second, David Chadwick's unbroken association with the audit process; in spite of several changes in his firm's make-up.⁸

Another indication of Chadwick's personal involvement with Staveley, both as auditor and financial adviser, is provided by noting his attendance at the general meetings of the company between 1864 and 1883. In the early years, up to 1870, Chadwick attended the OGM on a fairly regular basis. During the following 12 years up to 1882, for most of which time he was Liberal MP for Macclesfield (1868–1880), his personal interest in the company appears to have waned. A notable exception to this was, however, the extraordinary meeting of 28 April 1873 when the proposal for the £391,000 revaluation of fixed assets was first tabled. Following this, Chadwick attended the next two OGMs, in 1873 and 1874, the latter in company with Edwin Collier.⁹

There then followed an eight-year gap in Chadwick's attendance at Staveley general meetings (1875–1882) although in every year of those

⁸In all David Chadwick had 10 partners between 1860 and 1892 and from seven he was separated by law suits' (Cottrell in Jeremy ed., 1984).

⁹Chadwick's intention at this stage may, perhaps, have been to hand over the day to day running of the Staveley audit to his partner, Collier, but there is no firm evidence to support this.

but one (1876) Collier was present. It is therefore, at first glance, a little surprising to see Chadwick reappear, in company with Collier, at the 1883 OGM. Examination of the balance sheet at 30 June 1883, however, casts some light on this. The auditors' report at the foot of the balance sheet appears in the following form:

'GENTLEMEN,
We have examined the above Balance Sheet, and certify that it agrees with the books of the Company. We have reported to the Directors and recommend the adjustment of the Depreciation Account, and of the various items of Expenditure on Capital Account paid out of the Reserve Fund and the Revenue Account since the estimated increase in value created by the Resolution of the Shareholders on 28th April 1873.
We are, Gentlemen,
You obedient Servants,
CHADWICK, COLLIER & CO.,
Auditors.
64, Cross Street, Manchester.
August 31st. 1883.'

Obviously, both Chadwick and Collier felt the need to be present at the 1883 OGM to explain to the shareholders their action in 'qualifying' the audit report.

1883 ordinary general meeting

The 20th OGM of Staveley was held at the Victoria Hotel, Sheffield, on Friday 14 September 1883 at 12 noon. The meeting was chaired by Charles Markham, he having succeeded Henry Pochin to the chairmanship of the Board in 1879.¹⁰ The minutes of the meeting are preserved in Minutes of General Meeting No. 2, pp. 86–101, SA:39/80/13.

Following some general opening remarks, and with only a passing reference to 'a change in the wording' of the auditors' report, Markham proposed the adoption of the directors' report and balance sheet. The proposition was seconded by Pochin and opened to the meeting for discussion. Inevitably, a question from 'a shareholder' seeking clarification of the auditors' position quickly followed. Markham, obviously irritated by the affair, '... I am as much at a loss to understand what this report is about as you are', sought to parry this line of questioning. 'A shareholder', however, persisted, and finally the floor was

opened to Chadwick to explain the qualification in the auditors' report.

The essence of Chadwick's complaint was that recommendations which he had made to the company in 1879, regarding the method of accounting for fixed assets and depreciation, had not been acted upon.¹¹ His main concern, he said, was that having written up the value of fixed assets by £391,000 following the resolution of 28 April 1873, the directors then proceeded to write off substantial later additions against reserves *and against profit and loss account*. His favoured option at the time of the revaluation had been, he said, to allocate the £391,000 over the three main heads of fixed asset, namely, Collieries, Ironworks, and Farms and Cottages and subsequently to calculate a charge for depreciation on the basis of the augmented values. As it was the £391,000 remained in the capital ledger 'unappropriated' as it had been when originally posted there in 1873. As a solution, the recommendations which he now proposed were twofold:

1. '... you have got a depreciation Fund of £201,000 which ought to be appropriated and deducted from the value of the property'.

Chadwick seemed to be implying that depreciation should, in the books of account as well as in the balance sheet, be charged directly against the value of fixed assets, rather than to a separate 'fund'. His reasoning for this was, presumably, that while depreciation remained separated from the assets to which it related (the account was not even included in the capital ledger at this time it will be remembered) the directors might be tempted, at some stage, to appropriate it for another purpose.

2. 'To take the £160,000 expended in these various concerns [capital projects written off to the reserve fund] from the £391,000 reducing it to £231,000, then to deduct the further Sums taken from Profit & Loss so as to reduce the unappropriated balance to £151,000.'

This proposition is less clear but, in essence, seems to indicate that the company should utilise £240,000 of the £391,000, currently debited to 'Plant' account in the capital ledger, to reinstate certain specific capital spends in that ledger which had previously been written off, either to reserve fund (£150,000), or to profit and loss account (£80,000). While spends of £160,000 on 'New Works' had, as already described, been overtly charged to reserve fund on the face of the balance sheet between 1875 and 1883 the extent of similar debits, directly to the profit and loss account, had, in the past, been far less fully explained. A detailed

¹⁰Four other directors, including Pochin, were also present, as was the company secretary, Edwin Beddow, the auditors, Chadwick and Collier, and some 34 general shareholders.

¹¹Markham, in one of several interjections during Chadwick's address, said that he believed that such recommendations had never, in fact, been received! Certainly no archival record of this communication from Chadwick to the company appears to have survived.

examination of the Staveley capital ledger, however, reveals that there was a substantial write-off of capital expenditure to profit and loss account, particularly during the period 1872–1875 (see Appendix 2). No mention of this appeared in the relevant published balance sheets or directors' reports, although, at the 1874 OGM, Pochin was moved to admit that expenditure estimated at some £70,000 spent on sinking new pits had been treated in this way.¹²

Given the substantial magnitude of both hidden and secret reserves revealed by Chadwick in his address to the 1883 OGM, his second proposition seems somewhat limited in its scope. The effect of his proposal, had it been implemented, would have been the reallocation of a part of the 1873 revaluation surplus. Originally this had been debited, as previously described, to 'Plant a/c' in the capital ledger, but now, on the basis of *subsequent* capital spends, he proposed that it be differently appropriated. There seems to be little doubt, however, that this was Chadwick's intention. In reply to a later questioner he responded, 'My answer is that the figure [of £780,841 appearing in the balance sheet for fixed assets] would stand exactly the same if the books were made correct, but the £391,000 would stand in your books at £151,000 only, and the books would then be absolutely correct.'¹³

Following Chadwick's address, Markham called upon Edwin Collier, the other audit partner, to express his views. While concurring with Chadwick's first proposition, concerning the treatment of the depreciation fund, Collier proceeded to argue against the appropriation of the £391,000 in the way in which Chadwick had proposed, on the grounds that, 'It would be fallacious and misleading because you would not know how much to apply to this property, and how much to that'. Given this opening, Pochin, shrewdly, stepped in to defuse the discussion. Cleverly, he deflected the argument away from the directors and back at the auditors. 'This is not a squabble between the directors and the auditors; it is a squabble between the auditors . . . It is a squabble between tweedledum and tweedledee, as the figures are agreed by

both parties [Chadwick and Collier] to be correct.'¹⁴ The resolution to adopt the directors' report and balance sheet was then put to the meeting and, 'carried unanimously'.¹⁵

Comment and conclusions

Edwards argues that in the unregulated financial environment of the 19th century, management was left free to choose those accounting policies that maximised its utility. The problem in testing this hypothesis, however, is in recognising, specifically, *whose* utility one might expect to see maximised in any given situation. Obviously general statements about maximising shareholder wealth are unhelpful in this context. Similarly, whether the utility of an organisation and that of its individual directors can be regarded as being one and the same is dubious. At Staveley this problem is simplified, to some extent, in that between 1863 and his death in 1888, 'Staveley's policies were essentially Markham's policies . . .' (Chapman, 1981, p. 75). In this specific case, therefore, it would seem quite appropriate to ponder how well the accounting policies adopted at Staveley fitted with Markham's own, readily identifiable, agenda, and thus can be seen as instrumental in maximising his, personal, utility.

In so far as Markham clearly desired the value of fixed assets to be stated at as low a figure as possible in the published balance sheet, several accounting devices described in this paper were used to bring this about. Namely:

1. The charging of annual depreciation on fixed assets from the outset.
2. The use of the profit on sale of railway property in 1867 to fund the write off of fixed asset additions between 1868 and 1871.
3. The use of the reserve fund created from the profits of 1873 and 1874 for a similar purpose between 1875 and 1883.
4. The covert charging of capital spends directly to profit and loss account, particularly between 1873 and 1875.

From Appendix 1 it can be seen that the charge for depreciation over the period equates very closely with the net spends actually capitalised. Had the further spends outlined in items 2–4 above been similarly capitalised, however, the net book value

¹²The figure of £47,415 appearing in Appendix 2 in this respect, falls well short of Pochin's estimate. A comment by Markham later during the 1874 OGM may go some way to explaining this. 'Mr. Pochin is no doubt right in the main in what he says about the £70,000. The Staveley Water Works and various other items are however included in the amount he mentions' (Minutes of General Meeting No. 1, p. 156, SA:30/80/12). No account for expenditure on the 'Staveley Water Works' appears in the capital ledger.

¹³There was, it would appear, no intention here to reverse the original entries giving rise to the hidden and secret reserves, and thus cause both sides of the balance sheet (fixed assets, and profit and reserves) to be increased by £240,000. Had this been the case Markham's obvious opposition to the proposal, which would then be seen to run counter to his whole financial philosophy, would be easier to understand.

¹⁴At this point Chadwick, hardly surprisingly, rose to respond, 'but the chairman ruled against him, and as it was evident the sense of the meeting was also against him he sat down'.

¹⁵Towards the end of the meeting a further proposition, 'That Mr. E. Collier be and hereby is appointed Auditor to the Company for the ensuing year . . .' was duly carried. Collier's remuneration for his services was fixed at £100; for the preceding 20 years, from its inception, Staveley had paid its auditors an annual fee of £200!

of fixed assets appearing in the balance sheet at 30 June 1883 would have been:

	£
Initial valuation per Armstrong	392,067
Additions less disposals (Appendix 1)	199,595
Written off to reserve fund (Appendix 2)	160,000
Written off to suspense (Appendix 2)	23,789
Written off to profit & loss (Appendix 2)	91,751
	<u>867,202</u>
Less depreciation (Appendix 1)	201,821
	<u>665,381</u>

Paradoxically, the actual fixed asset total of £780,841 was some £115,000 higher than this; the difference representing the excess of the 1873 fixed asset revaluation over the uncapitalised spends detailed in Appendix 2. On the face of it, therefore, the revaluation exercise would seem to run contrary to Markham's financial philosophy and if, indeed, this were the case then it would be difficult to see how Markham's agreement to the revaluation could be construed as, in any way, *maximising his utility*.

Apart from the overstatement of the fixed asset base, however, Markham had one other great fear; this was that any part of the annual published accounts should find their way into the hands of the world at large. In particular he feared that news of the company's profits and the rate of dividend paid to shareholders would weaken his hand in wage bargaining negotiations with the miners. Nevertheless, in spite of his best endeavours, this information seems, regularly, to have reached the local newspapers. Markham may therefore have viewed the 1873 revaluation as the lesser of two evils. Apart from uplifting the 'asset side' of the balance sheet the transaction also gave rise to a £391,000 bonus issue of ordinary shares; effectively doubling of the amount of the issued ordinary share capital. The outside world, unaware of this however, would simply have seen, all other things being equal, an apparent halving of the rate of future dividend payments. On this basis, the whole *raison d'être* for the revaluation becomes a powerful example of Markham pursuing his own ends; trading off his desire to depress the value of fixed assets against a more pressing short-term goal; to minimise the *apparent* rate of return on ordinary shares, 'In 1874 we should have paid fifty per cent dividend on the original capital, but diluted it amounted to 25 per cent...' (Minutes of General Meeting No. 2, p. 89, SA:39/80/13).

While Markham's preferences are clearly reflected in the accounting process at Staveley, Chadwick's motivation, particularly in terms of the events surrounding the 1883 OGM, is rather less obvious. Lee (1970) is in no doubt that '... the main objectives of the company audit of the period 1881 to 1900 were firstly, *the detection of fraud and error*, and secondly, their *prevention*'. Not until post 1920,

in his view, did auditing move away from the detection of *fraud and error* as its main objective and towards the giving of an opinion on the *credibility* of accounting information.

Recently, however, Lee's view has been the subject of reappraisal. Chandler et al. (1993) present strong evidence that until 1880, at least, verification of financial statements was the primary audit objective. In this context the irregularities that Chadwick was at pains to point out to the 1883 OGM, and in particular his preoccupation with reporting matters of *substance over form*, seem to add further support to the Chandler view. His expressed concern, that in terms of the 1883 balance sheet, over 50% of the fixed asset base was represented by a revaluation surplus generated some 10 years previously, appears not unreasonable. In the heady boom years of the early 1870s, such optimism might have seemed perfectly justified, but 10 years later, Chadwick obviously felt far less sanguine about this situation. The parallel with the discomfort shown by the UK accountancy profession in recent times, for example in relation to the valuation of brands, is difficult to overlook.

Further clues to Chadwick's behaviour may also exist outside the confines of Staveley. Chadwick had been unseated, as MP for Macclesfield, at the 1880 General Election amid allegations of bribery and personation (Cottrell in Jeremy (ed.), 1984). In 1883 his accountancy practice fragmented; splitting into three separate firms.¹⁶ Cottrell sees these two factors as possibly indicating 'a waning of his entrepreneurial energies'. Chadwick was also involved in protracted litigation at about this time relating to charges of misrepresentation in company prospectuses; *Robinson v. Chadwick* and *Smith v. Chadwick*. In the former case the plaintiff had, in the event, declined to proceed but in the latter action, in 1881, four out of 15 objections against the prospectus in question were initially upheld. Chadwick appealed in 1882 and, as a result, the earlier decision was reversed. Cottrell concludes, however, that, '... *Smith v. Chadwick* did highlight the most serious fault of the Manchester accountant—overdressing the prospectus...' (Cottrell, 1980, p. 130). Perhaps, on reflection, Chadwick felt that the 1873 revaluation had a similar effect in 'overdressing' the Staveley balance sheet. There is certainly evidence that the risk of possible litigation, resulting from this affair, was in his mind. At one point during his address to the 1883 OGM he remarked: 'The £391,000 stands in your books, without further explanation, and in point of fact

¹⁶The break-up of his practice appears to predate Staveley's 1883 OGM; Charles Markham commented at the meeting that, 'Mr. Chadwick and Mr. Collier have severed their partnership...'. To what extent however their disagreement over the Staveley accounts may have been a contributory factor to the break-up is a matter for conjecture.

I believe in case of a trial the directors or auditors would be personally liable.¹⁷

David Chadwick was undoubtedly an accountant of considerable professional status and expertise. That, in spite of this, he was unable to sway the shareholders at the 1883 OGM behind him is therefore somewhat surprising. Three factors seem to have mitigated against this. First, on his own admission, the very technical nature of his proposals

may well have gone 'over the heads' of the majority of shareholders. Second, the obvious and open hostility of Markham towards his position may have held sway in some quarters: and finally, the total lack of support afforded to him by his audit partner, Collier, could not have gone unnoticed.

Thus, generally, this series of events would seem to provide strong evidence in favour of Edwards' 'utility' view of 19th century published accounts. Indeed, in Staveley's case, even the regulatory strictures imposed by a prestigious and, for the times, unusually well qualified external auditor, seemed to have little effect in influencing the views and aspirations of a totally dominant managing director.

¹⁷Further evidence of the intensity of Chadwick's feeling in this respect, and his desire to distance himself from the 1883 Staveley balance sheet, is provided by the fact that, following the meeting, he felt moved to write to the 'Sheffield newspapers' to explain his position (Directors Minute Book No. 5, p. 124, SA:39/80/5).

Appendix 1

Staveley Coal & Iron Company Limited

Schedule of Fixed Assets 1863-1883

Year*	Valuation £	Additions £	Disposals £	Revaluation £	Depreciation £	Balance† £
	392,067					392,067
1864		22,670				414,737
1865		43,146	-43		-13,000	444,840
1866		6,926	-7		-9,650	442,109
1867		18,640	-6,006		-8,133	446,610
1868		25,599	-43		-10,000	462,166
1869		18,238			-7,428	472,976
1870		4,211			-7,951	469,236
1871		12,148			-8,602	472,782
1872						472,782
1873		18,389		391,000	-18,989	863,182
1874					-13,000	850,182
1875		14,542			-13,780	850,944
1876		22,142			-14,979	858,107
1877			-70		-16,309	841,728
1878			-281		-10,000	831,447
1879			-100		-10,000	821,347
1880			-94		-10,000	811,253
1881			-217		-10,000	801,036
1882			-22		-10,000	791,014
1883			-173		-10,000	780,841
Totals	392,067	206,651	-7,056	391,000	-201,821	780,841

*To balance sheet date i.e. 30 June

†Per balance sheet

Appendix 2

Staveley Coal & Iron Company Limited

Schedule of Profits and Appropriations 1863–1883

Year*1	Profit*2 £	Dividend*3 £	Reserve*4 £	Suspense*5 £	Other*6 £
1864	33,579	30,000			
1865	86,921	69,720			
1866	82,713	71,683			1,485
1867	64,758	65,166		23,789	70
1868	65,040	65,166		–4,058	
1869	76,622	65,166		–4,417	
1870	65,403	65,166		–8,312	1,944
1871	63,059	65,166		–7,002	3,461
1872	93,398	78,200			7,738
1873	257,380	156,400	100,000		10,798
1874	263,921	195,400	60,000		47,415
1875	133,760	130,333	–20,131		17,242
1876	82,537	78,200			
1877	69,019	65,166	–37,933		1,153
1878	39,892	52,133	–25,575		
1879	29,291	32,583	–14,055		
1880	49,635	52,133	–19,072		
1881	55,145	52,133	–12,022		445
1882	49,492	52,133	–5,476		
1883	50,426	52,133	–25,736		
Totals	1,711,991	1,494,180	0	0	91,751

*1 To balance sheet date i.e. 30 June

*2 Per balance sheet after tax and depreciation

*3 Interim paid and final proposed for the year

*4 Appropriated from profit and w/o against capital expenditure

*5 Profit on sale of railway property w/o against capital expenditure

*6 Capital expenditure w/o directly to P/L account per capital ledger

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The Recognition of Executory Contracts

Paul Rouse*

Abstract—This paper examines the nature of executory contracts using as examples forward exchange contracts, asset purchase commitments and leases. FECs are paid particular attention as they have not previously been the focus of discussions concerning executory contracts. The arguments in the literature for recognition of wholly executory contracts can be summarised as follows: recognition provides more relevant information for decision making and is therefore useful; and the contractual rights satisfy the control criterion required by most asset and liability definitions if the contract is firm, thereby evidencing the commitment of the parties. It is argued in this paper that the decision usefulness argument neglects representational faithfulness as it recognises rights that a party does not control; the rights under the contract can be separately identified as rights of alienation and use or conversion; and an approach using deprival value provides a better indication of commitment than firmness.

Introduction

The recognition of executory contracts has long been a controversial area in accounting, particularly during the debates over lease capitalisation during the sixties and seventies. There has been a rekindling of interest in this area in recent years with the growing approval of commitment accounting advocated by Ijiri (1975 and 1980) and the incorporation of some of Ijiri's suggestions into several publications of professional bodies. Specifically, there have been suggestions that this type of accounting should be applied to financial instruments. For example, it has been suggested that forward exchange contracts (FECs) should be incorporated into the financial statements through the recognition of the gross assets and liabilities underlying such contracts (Hancock, 1990).

This paper examines the nature of executory contracts using as applications FECs, asset purchases and leases. FECs are paid particular attention as they have not previously been the focus of discussions concerning executory contracts.

The arguments in the literature for recognition of wholly executory contracts can be summarised as follows: recognition provides more relevant information for decision making and is therefore useful; and the contractual rights satisfy the control criterion required by most asset and liability definitions if the contract is firm, thereby evidencing the commitment of the parties. It is argued in this paper that the decision usefulness argument neglects representational faithfulness as it recognises rights that a party does not control; the rights under the contract can be separately identified as

rights of alienation and use or conversion; and an approach using deprival value provides a better indication of commitment than firmness.

A distinction is drawn between resources, assets and property rights, which are examined in turn to clarify basic recognition issues. The property rights perspective provides insights into what is being recognised and when it should be recognised. These insights are used to analyse the relationship between decision usefulness and control. It is argued that recognition of executory contracts depends on the rights acquired and that recognition of the gross assets and liabilities can only take place when full rights to use, conversion and alienation have been acquired. The valuation of these rights is linked to the referents in the deprival value approach to the determination of commitment.

Executory contracts

The legal definition of an executory contract encompasses both wholly unperformed and partially performed contracts. A contract is wholly executory if neither party has performed any part of the contract; partially executory if at least one party has performed some of its obligations; and wholly executed if both parties have fulfilled their obligations. Accounting generally recognises partially executory and wholly executed contracts.

In recent years there have been several recommendations for the recognition of assets and liabilities under wholly executory contracts¹ on the basis of decision usefulness, commitment and control.

The decision usefulness argument is referred to by the following authors. 'Recognition before the delivery point would seem to provide information more useful for assessing (a) the enterprise's

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¹For a review of earlier recommendations other than those described see the appendix to Ijiri (1980).

prospective cash flows, (b) the enterprise's liquidity and solvency, and (c) management's stewardship performance. In addition, it could generally improve the timeliness of some of that information' (Ijiri, 1980, pp. 47–48). Cramer and Neyhart (1979, p. 141) recommend recognition when reasonable assurances exist of the contract being performed on the basis that this 'would be more useful for explaining and predicting phenomena such as periodic operating and financial flows as well as the assets and liabilities associated with those flows' (p. 150). Gujurathi and Biggs (1988, p. 81) recommend recognising the asset and liability under a non-cancellable purchase commitment at the date of inception, 'on the grounds of decision usefulness and precedent in GAAP' (p. 78).

Given that this information may be useful for decision making, it is necessary to determine whether contractual rights and obligations satisfy the definitions of those items that are candidates for recognition as assets and liabilities (Ijiri, 1980, p. 65). This involves consideration of the level of commitment of the parties to the contract as evidencing control over the contractual rights and obligations.

Ijiri recommends that recognition should take place when a contractual right or obligation becomes firm, i.e., if it is unlikely that performance can be avoided without severe penalty (Ijiri, 1980, p. 66). Firmness therefore indicates how committed the entity is to performance (*ibid.* p. 65).

The argument that firmness provides evidence of control has been adopted by other authors. 'Control exists when the contract becomes firm to the extent that it cannot be avoided without a severe penalty', Miller and Islam (1988, para. 5.10). The Proposed Statements of Accounting Concepts issued by the Australian Accounting Research Foundation (AARF) on the definition and recognition of assets (ED42C) and liabilities (ED42D) allow recognition depending on whether the reporting entity has control over the service potential or future economic benefits, such control being evidenced by the firmness of the contract (ED42C, para. 44).

Johnson and Storey (FASB 1982) liken 'control' to 'obligation', namely, that 'the enterprise must be presently obligated to make that sacrifice' (p. 77). 'If a binding commitment involving a penalty for breach has been entered into that is expected to result in a material obligatory outflow of cash or other assets in the foreseeable future, and the amount and timing of the outflow can be determined with reasonable certainty, the commitment satisfies both the definition of a liability and the criteria for recognition as such. . . . The rights that are obtained in return for the commitment should be recognised as assets at the same valuation' (Solomons, 1989, p. 20).

These arguments have been used in proposals to recognise the rights and obligations under financial instruments. On the basis of ED42C and ED42D (AARF), Hancock (1990) advocates recognition of the gross assets and liabilities associated with financial instruments, in particular FECs. Others imply that recognition of FECs at inception is the norm (Gujurathi and Biggs, 1988, p. 78; Kemp and Phillips, 1989, p. 538). These proposals involve significant changes in conventional accounting and are controversial.²

Criticisms of the firmness principle

The criticisms fall under the areas of decision usefulness and control, and commitment. These are expanded on under their respective headings later in the paper.

The decision usefulness arguments rely heavily on relevance as the primary characteristic. Reliability, however, is also a primary characteristic and the recognition of assets under a wholly executory contract provides a conflict between representational faithfulness and relevance. In order to demonstrate this conflict, a property rights perspective is adopted which is explained in the following section. This enables control to be focused on the rights the firm currently possesses and clearly shows which rights are not in possession. The need to clearly identify which rights are held arises from the assumption that the rights and obligations under the contract progress in tandem so that as soon as either of the two becomes firm, the other is also assumed to become firm (Ijiri, 1980, p. 66). But, the assumption that the commitment and the rights move in tandem is questionable. Which of the rights under the contract are to be recognised? A right to sell the contractual rights to another party (right of alienation) exists and is under the control of the entity, but rights of use or conversion are not yet available. The principle is incomplete because it does not specify what is to be recognised, especially in the case of the asset.

It has been argued by the above authors that commitment is evidenced by firmness. This is a narrow interpretation of commitment in that it focuses solely on one economic incentive for evidence: the penalty for non-performance. The emphasis seems to be misplaced when the recognition of the assets and liabilities of a contract is dictated by the consequences of non-performance: does this mean that the absence of severe penalties in an almost identical contract precludes the recognition of exactly the same assets and liabilities? Ijiri (1980,

²The recognition of assets and liabilities under financial leases has already been adopted. This was extremely controversial in its time and still is in many countries.

p. 60) argues that recognition of non-binding contracts would reduce the relevance and reliability of the aggregate information provided about contractual rights and obligations if the non-binding contracts are cancelled. However, there may well be information content in the cancellation of these contracts that would increase their relevance for disclosure. The exclusion of contracts with little or no penalties relates more to contract form than substance. The test for recognition should be how committed the firm is to performance which is a function of the relative values of the rights exercisable by the firm.

Resources, assets and property rights

The definition and recognition of an asset is complex and often contradictory in practice. Not all economic resources are recognised as assets under conventional accounting definitions, and not all assets recognised are necessarily economic resources. Wholly executory contracts are examples of economic resources not recognised as assets. Deferred tax debits and preliminary expenses are examples of recognised assets that are not economic resources (Nurnberg, 1981). Generally, however, most recognised assets are economic resources and those that are not are justified by appeals to rights to future economic benefits such as the reduction of future tax payments in the case of deferred tax debits.

The notion of property rights is implied or specified in most conventional definitions of assets. Property rights are generally understood to refer to 'the sanctioned behavioural relations among men that arise from the existence of goods and pertain to their use' (Furubotn and Pejovich, 1974, p. 3). Rights are numerous and the value of a bundle of rights is affected by the number of restrictions on those rights. The rights of ownership are a sub-category of the general concept and consist of the rights to consume or use (obtain income from), convert (change the form of) and alienate (sell) goods. 'Obtaining income from and alienating assets require exchange; exchange is the mutual ceding of rights. Legal rights, as a rule, enhance economic rights, but the former are neither necessary nor sufficient for the existence of the latter. The rights people have over assets . . . are not constant; they are a function of their own direct efforts at protection, of other people's capture attempts, and of government protection' (Barzel, 1989, p. 2).

Assets are therefore properly perceived as *bundles* of rights whose value depends on the use and restrictions placed on them. Because the rights to a single resource are numerous, the same resource may have several bundles of rights pertaining to it and therefore several related assets. Thus an asset is not unique in terms of the underlying resource,

but only in terms of the composition of rights relating to that resource. All the rights of alienation, conversion and use may not be held by a single entity because of either the contractual arrangement entered into or timing differences. For example, a lessee acquires a right of use but generally no rights of alienation or conversion. Thus, the lessee's asset is the bundle of use rights, the value of which will depend on the number and type of restrictions placed on the use. The lessor has a different bundle of rights consisting of the right of conversion, the right to sell or mortgage the asset, and the right (subject to any contractual restrictions) to sell the lease.

Timing differences typically involve purchase commitments where an agreement is entered into to purchase a good but possession does not take place until a later time. The purchaser at the time of entering into the agreement acquires a right of alienation, but rights of use and conversion are not usually acquired until possession. The asset *at the contract date* therefore comprises the rights of alienation but does not include any rights of use or conversion. These are not available to the purchaser until possession.

Future economic benefits arise from the rights to consume, obtain income from (use) and alienate (sell) an asset. It is therefore the rights that determine the existence of future economic benefits, not the opposite.³ Future economic benefits may be different for different rights or bundles of rights. Although it is common to consider the value of the benefits from use of an asset separately from the legal distribution of such benefits and the financing of the asset, the size and incidence of the benefits are often different according to the entity's nature and rights. For example, a lessor often enjoys significant tax advantages unavailable to a lessee. A leasing arrangement is thus beneficial to both parties as these advantages can be shared depending on the relative negotiating strength of each. Each party will recognise the leased asset but the 'value' of the future economic benefits will differ according to the (after tax) income streams. The sum of these 'values' does not necessarily measure the 'value' of the asset.

Decision usefulness and control

The need for an entity to control economic benefits is common to most definitions of an asset. The requirement for contractual rights and obligations to first satisfy the respective definitions of

³There is an element of 'chicken and egg' in that rights will only be captured if there is a possibility of future economic benefits arising from those rights. However, the identification and measurement of future economic benefits is only possible when the rights pertaining to a resource have been specified and captured.

assets and liabilities in Ijiri's framework has been noted in the earlier part of this paper. The Accounting Standards Committee's Exposure Draft 49 defines control as 'the ability to obtain the future economic benefits associated with the resource' (para. 47) and 'evidence of the identity of the party possessing control may be found in the ability to restrict the access of others to future benefits' (para. 48).

Control, however, either does or does not exist at a point in time or during a period of time. The strength of viewing assets and liabilities from a property rights perspective is that it requires the identification of the specific rights held by an entity at a point in time. Controllability thus refers to the possession of property rights at a point in time that will provide future economic benefits. The arguments in favour of recognising the nominal amounts under executory contracts on the basis of decision usefulness fail to specify what rights they are recognising and whether these rights are in fact in the possession of the entity at the time of reporting.

Relevance and reliability are the primary characteristics of decision usefulness (ASC, 1991; FASB, 1980). Arguments in favour of recognition of executory contracts rely on relevance to support early recognition and the firmness criterion to support reliability via representational faithfulness. Some rights, however, are not in the entity's control at the time of reporting (e.g., rights of use and conversion). To infer that these rights are in the entity's control must conflict with representational faithfulness and hence reliability.

For example, assume firm A sells goods for \$1,000 to firm B on 31 December and that both firms have the same balance date on 31 December. The contract contains severe penalty clauses and thus satisfies the firmness criterion. This example is outlined in Table 1. Rights of alienation, use and conversion are denoted by the letters a, u and c respectively. Only the asset side of the entry is shown.⁴

In the first situation, a wholly executed contract, both firms have acquired assets and have full rights to those assets which would conventionally be recognised at \$1,000. In the second situation, a partially executed contract, firm A has acquired an asset, debtor, and has rights as to alienation and conversion but not use. For example, A may sell the entire contract including service obligations to a third party for collection or it may factor the debt and retain its service obligations. Firm B has acquired full rights for the goods. Again, the assets would conventionally be recognised at \$1,000. In the third situation, a wholly executory contract, firm A has rights as to alienation for the contract itself. For example, A may subcontract its per-

formance obligations to a third party or it may sell the contract to some other party, both transactions being common in the financial instruments market. Firm B has acquired the contractual right to receive goods on 31 January, which it may sell on to a third party.

There are significant differences in the type of asset and rights acquired between situation 3 and situations 1 and 2. Firm A or B has a contract which it may sell in response to changes in the market price. In the case of a FEC, if the exchange rate changes, the market value of the contract will be different from the original price. The value of the alienation rights is therefore this difference: it is not the original price.⁵ Similarly, firm B has a right of alienation that it may exercise, again depending on changes in market prices. Both firms have no use or conversion rights as at 31 December.

The contract price sets a lower bound on the value of the usage or consumption rights following conventional capital appraisal techniques. At the contract date, the value of the alienation rights are zero assuming that the price is an equilibrium price. With the passage of time, the market price for an identical or similar asset may change giving rise to a positive or negative value that represents the value of the alienation rights. Thus, rights of alienation should be recognised as the difference between market price and contract price, whereas rights of use and conversion should be recognised as the contract price. Alienation refers to the transfer of use and conversion rights pertaining to an economic resource and arises from the contract itself while the latter rights relate to the actual resource. If the assets in the executory contract in situation 3 are recognised at 31 December as debtors of \$1,000 for firm A and goods of \$1,000 for firm B, the inference is that both firms possess full rights at that time, which can hardly be said to faithfully represent the effects of the transaction (ASC, 1991, para. 28). It may be argued that reporting the full amounts (in this case \$1,000) provides information relevant to predicting future cash flows and that therefore relevance outweighs reliability. Information about the market value of the rights possessed by the entity provides a better measure of managerial performance while conforming with representational faithfulness, and therefore more useful information is provided in *general purpose* financial statements.

Note that, as the value of the alienation rights as at contract date is normally zero, there is nothing to be recognised at that time. After the contract date, changes in the market price can arise and these should be recognised as the value of the alienation rights.

⁴In situation 3, the right could have a negative value if the market price has fallen below the contract price.

⁵In this example, as at 31 December, the value of the alienation right would most likely be zero if the price is an equilibrium one.

Table 1

Rights Possessed with Different Combinations of Delivery and Payment Times

<i>Situation</i>		<i>Firm A</i>		<i>Firm B</i>	
Contract date: 31 December					
1. Delivery	31 Dec	Cash	{a,u,c}	Goods	{a,u,c}
Payment	31 Dec				
2. Delivery	31 Dec	Debtor	{a,c}	Goods	{a,u,c}
Payment	31 Jan				
3. Delivery	31 Jan	Debtor for	{a}	Goods	{a}
Payment	31 Jan	goods to be delivered		on order	

Use of deprival value in determining commitment

A major problem with the firmness principle is that it focuses on only one economic incentive, penalties, and ignores other incentives such as present value, the cost of alternative contracts and the value of assignment of contractual rights. A better approach to ascertaining commitment is provided by deprival value.

Deprival value became the basis for the method of accounting for inflation in the UK in the 1970s and 1980s as recommended by the Sandilands committee. It refers to the maximum amount of the loss that would be suffered by the entity if it were deprived of the assets concerned (ED18, para. 183). The maximum loss of an item in the context of deprival value is determined by reference to its present value (PV), replacement cost (NRC) and net realisable value (NRV). The choice of value is a function of the intentions of the business. The variety of intentions with respect to an asset have been summarised by Nobes (1977, p. 96) as replacement with an identical asset, replacement with a modern equivalent, replacement with a smaller asset, no replacement and disposal of the asset. In order to ascertain the appropriate value, six possible cases were used employing a combination of the three referents above.

Case

- 1 PV > NRC > NRV
- 2 NRC > PV > NRV
- 3 NRC > NRV > PV
- 4 PV > NRV > NRC
- 5 NRV > PV > NRC
- 6 NRV > NRC > PV

The intentions of a firm are ascertained by considering its likely action in each case. When $PV > NRC$ and NRV , the value in use of an asset is greater than its replacement cost or disposal value and the inference is that the firm would continue with the existing asset. In other situations,

the firm may be better off trading with replacement than using the asset (cases 5 and 6) and in cases 2 and 3 the firm is better off either using or disposing of the asset (respectively) with no replacement. The framework thus provides a useful means of inferring the firm's intentions. The deprival value obtained, however, has more of a negative twist and hinges on the loss from deprival rather than the gain from acquisition (Baxter, 1975, p. 126).

This framework is a useful guide to determining commitment in the case of executory contracts. It seems more acceptable that commitment is determined by the value to the firm of the contract rather than solely by the severity of any penalty for non-performance. Thus, the commitment of the firm to performance under the contract is determined by whether the value-in-use or the value of assignment rights are greater than the costs of non-performance. Further, although the original project that formed the basis for entry into the contract may be viable, opportunities may arise for the existing contract to be replaced.

To illustrate this, the terms above are re-interpreted as follows:

- PV** this is the present value of the future economic benefits of the use or consumption rights acquired under the contract. The contract price sets a lower bound on this value.
- NRC** this is the cost of replacement of the existing contract by another contract (either new or renegotiated) with identical or similar rights. The cost consists of the new contract price plus transaction costs including the penalty for withdrawing from the existing contract.
- NRV** maximum of {net proceeds from marking to market of the contract rights, penalty for breaking contract}. The net proceeds from disposal may be positive or negative depending on opportunities in the marketplace. The maximum of the net proceeds

and penalty represents the value of the alienation rights.

Commitment under the six cases may now be ascertained as follows:

- Case 1.* The value of the usage rights is greater than the cost of a substitute contract or the cost of either breaking the contract or assigning performance rights to a third party. Commitment is high.
- Case 2.* A replacement contract is not a viable option and the value in performance is greater than non-performance. Commitment is high since there are definite advantages to the existing contract.
- Case 3.* The project for which the contract was entered into is no longer perceived as beneficial to the firm and a replacement contract would worsen the situation. The best option for the firm is to withdraw from the contract or to assign its obligations to a third party if possible. The firm therefore has no commitment to the completion of the contract.
- Case 4.* The original project is attractive, but a profitable alternative has arisen to replace the original contract with an identical or similar contract. As the penalty is included in both NRV and NRC, net proceeds from disposal are positive. Reduced commitment to completion of the original contract and replacement will change the situation to case 1.
- Case 5.* The existing contract has a higher value of disposal than use. As the penalty is included in both NRV and NRC, net proceeds from disposal are positive. Reduced commitment to completion of the original contract and replacement will change the situation to case 1.
- Case 6.* A trading option is more profitable than value-in-use. Thus the contract should be assigned. As the penalty is included in both NRV and NRC, net proceeds from disposal are positive. No commitment to original contract.

It can be seen from the above analysis that high commitment to performance of the original contract only arises in cases 1 and 2 and is considerably less in cases 4 and 5. In cases 3 and 6, there is no commitment to performance and the firm is better off disposing of the contract even if there are severe penalties. From this it appears that the use of the deprival value framework provides a better explanation of commitment and justification for recognition of wholly executory contracts than the penalty test proposed by Ijiri. It also provides the linkage to the rights of alienation, use and consumption.

Illustrations using wholly executory contracts

On 1 January a New Zealand firm enters into a FEC to buy US\$10,000 with payment to be made in two months' time at the forward rate of 0.6171. The value of the US\$10,000 in NZ dollars is therefore NZ\$16,205. Hancock (1990) and Kemp and Phillips (1989) would recognise the FEC as at 1 January showing a foreign currency receivable and FEC payable of NZ\$16,205. However, up to 1 March the FEC provides the purchaser with a right of alienation only: the right to trade the FEC if desired. This right may be sold or closed out by the purchaser at any time up to the settlement date as it gains or loses value depending on changes in the forward market rates. Assume that the forward rate for the US dollar has changed to 0.6159 for a one-month contract as at 1 February. The value of the US\$10,000 in domestic currency is now NZ\$16,236 and the firm is better off by NZ\$31. The value of the right is thus NZ\$31 and the firm may choose to exercise that right entering into another FEC to sell US\$10,000 in one month. This value of the alienation right is not the same as the sum of money to be exchanged i.e., US\$10,000 or NZ\$16,205. The value is based on the difference between the contract forward rate and the market forward rate for the equivalent future date. It is only on the settlement date that the firm acquires the additional rights of use and conversion and it is only on this date that an asset of NZ\$16,205 should be recognised.⁶

Using a different example, assume a firm enters into a contract for purchase of a building with possession to take place in three months' time. The nominal asset is the building. However, the benefits of the building per se cannot be exploited or enjoyed until the day of possession. The contract, however, may acquire its own value. If, shortly after the contract is signed but before possession, the market price should increase, the financial instrument itself (i.e. the contract) has acquired value because the purchaser has effectively gained through the movement in the price. This gain could be realised by entering into another contract for onward sale of the building or it can take the form of a holding gain. Either way, the instrument has acquired value and this value can be exploited at any time subsequent to the signing of the contract. Conversely, the market price of the building could decrease and the instrument therefore acquires a negative value because the firm is still contracted to pay the original amount for the building. The building itself is not available until possession and therefore no rights of use or conversion have been acquired until that time. Thus the asset 'building'

⁶A fuller explanation with speculative and hedging examples is provided in Bradbury, George, Lyne and Rouse (1991).

should not be recognised until the rights of use and conversion have been acquired.

Summary

Information about wholly executory contracts can be of use for decision making. However, reporting the gross assets and liabilities of contracts conflicts with representational faithfulness as control over rights is implied which the firm does not possess prior to possession. The composition of the asset depends on the rights over which the purchaser has control. Rights of use and conversion enable the purchaser to exercise control over the future economic benefits arising from these rights. Where such control exists, the contract asset and related liability should be recognised. In the absence of such control, only the right of alienation bestowed under the contract can be recognised.

The deprivation value approach enables the firm's commitment to the contract to be analysed by reference to the values of the rights of alienation, use and consumption. A linkage is thus provided between project appraisal, financial reporting and property rights. The nominal assets and liabilities under FECs should therefore not be recognised until the contract is executed. There may, however, be recognition of changes in the value of the financial instrument.

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Collective Bargaining and Cost Accounting: The Case of the US Men's Clothing Industry

Thomas Tyson*

Abstract—The attributes and rationales of modern cost accounting procedures are not unequivocal. Some scholars underscore the adversarial relationship between accounting and labour (Bougen, 1989; Owen and Lloyd, 1985; Ogden and Bougen, 1985) while others contend that accounting data were used as much for social, political and ideological purposes as for efficiency concerns (Hopper and Armstrong, 1991; Ezzamel et al., 1990; Hoskin and Macve, 1988a and 1988b; Stewart, 1992). Alternatively, several researchers have re-examined the origins of cost accounting and more recent costing developments (Fleischman and Parker, 1991; Fleischman and Tyson, 1993; and Tyson, 1990 and 1992). The present paper further explores the development of modern cost accounting practice. It presents a detailed analysis of the US men's clothing industry between 1919 and 1926 and assesses over 1,200 arbitration decisions to determine how piece rates, production standards and standard costs were developed, implemented and carried out in practice. It finds that collective bargaining and compulsory arbitration significantly moderated these procedures such that workers and owner/managers received tangible economic benefits.

Introduction

Frederick Taylor (1915) advocated certain principles (job analysis, professional managers, production scheduling, etc.) that have been absorbed into modern management without much controversy; however, the impact of piece rates, production standards and standard costs remains controversial.¹ While certain scholars argue that standards were primarily intended to increase efficiency (Chandler, 1977; Johnson and Kaplan, 1987), others contend that they were chiefly implemented to de-skill, disempower and control workers (Braverman, 1974; Clawson, 1980; Hopper and Armstrong, 1991). More recently, scholars have attributed Foucauldian rationales to explain standard cost and other

cost accounting developments (Ezzamel, Hoskin and Macve, 1990; Hoskin and Macve, 1988a and 1988b; Miller and O'Leary, 1987; Stewart, 1992).

This paper adopts an archive-based approach and draws its conclusions from the writings and recollections of individuals who directly participated in events in the US men's clothing industry during the early 1920s. The paper describes a series of collective bargaining agreements (Agreements) between the Rochester Clothiers' Exchange (RCE) and the Amalgamated Clothing Workers of America (ACW), and appraises over 1,200 arbitration case decisions that stemmed from the Agreements. Together, this evidence indicates that actual production standards were neither scientific nor conceptually pristine, were developed through compromise and negotiation, and provided benefits to workers and employers alike. More generally, this paper contends that an industry's collective bargaining structure, experience and machinery have a major impact on cost accounting developments.

The paper initially recounts the environment of collective bargaining in the US men's clothing industry. It highlights key provisions of the Rochester Agreements, categorises over 1,200 arbitration decisions stemming from the Agreements, and recounts selected features including the development of standard costs. It then identifies benefits that owner/managers and workers received from the application of standards.

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¹Harrison (1921, pp. 34–35) described the direct relationship between production standards and standard costs:

'It is the province of the engineer to determine the standards for use in the shops and to provide for proper methods to adopt for the realisation of these standards . . . it is obvious that some means must be provided for showing the extent to which the results actually obtained conform to the standards set up, and this demands the maintenance of records. It is the province of the accountant to provide and carry along such records.'

Collective bargaining and the Rochester Agreements²

Although the interface between accounting and collective bargaining has been explored in earlier studies, it has rarely been the subject of empirical examination. This paper responds to Bougen's call for data-based studies that empirically examine the accounting-industrial relations field (Bougen, 1989, p. 205):

'There has been, unfortunately, a lamentable paucity of such research in the accounting-industrial relations field. Too often, issues deemed central to the understanding of the area have been the product of speculation rather than the analysis of specific empirical illustrations. As a consequence, a style of research has emerged more concerned with the potentialities and assumed purposes of accounting than its actualities.'³

Several scholars have suggested that the interests of owner/managers and workers are invariably confrontational and mutually exclusive, that bargaining outcomes result chiefly from power differentials, and that accounting numbers reinforce opposing interests (Owen and Lloyd, 1985; Ogden and Bougen, 1985). However, they did not suggest that leaders of opposing groups might intentionally put aside ideological differences to implement procedures perceived to be mutually beneficial. Evidence regarding the collective bargaining experience in the US men's clothing industry provides support for this pragmatic consideration.

Collective bargaining in the men's and ladies' clothing industry began with two pathbreaking agreements in 1910.⁴ In the ladies' industry, the so-called 'Protocols of Peace' established a number of jointly staffed committees to address health and safety matters, work rules, piece rates and production standards.⁵ In the men's industry, an agreement between Hart, Schaffner and Marx

(HSM) and the United Garment Workers (UGW) reduced work hours, established grievance and arbitration machinery, and gave hiring preference to union members. HSM management conceded these provisions in order to reduce labour turnover, eliminate work stoppages and improve cost efficiency.⁶

In 1914, Sidney Hillman and other HSM clothing workers left the UGW to form the Amalgamated Clothing Workers of America.⁷ The ACW grew from 48,000 members in 1916 to 138,000 by mid-1919, and by 1920 became the fourth largest industrial union in the US (Fraser, 1991, p. 115). Notwithstanding the strident Marxist language in its Constitution Preamble, ACW leaders consistently supported the collective bargaining process to resolve disputes.⁸ The ACW's General Executive Board Report at the 1916 Rochester convention typifies the Union's position (ACW, 1916, p. 140):

'As the industry grows, and as our organisation grows, collective bargaining agreements become all the more necessary. There must be regulated relations between the employers and our organisation; otherwise those relations assume the nature of spasmodic and guerilla warfare.'

While the motives and intentions that underlie the ACW's and employers' position are uncertain, the fact remains that both sides participated in collective bargaining negotiations many years prior to their legal mandate.⁹ From its inception, the

⁶In a 1921 article, HSM management indicated why they agreed to these concessions (Hart, Schaffner and Marx, 1967, p. 534):

'On the part of the employer it is the intention and expectation that this compact of peace will result in the establishment and maintenance of a high order of discipline and efficiency by the willing co-operation of union workers rather than by the old method of surveillance and coercion.'

⁷See the *Documented History of the Amalgamated Clothing Workers of America 1914-16* for a detailed discussion of the formative years of the ACW.

⁸The following language was contained in the preamble to the 1914 ACW Constitution (ACW, 1916, p. 74):

'Every oppressed class in history achieved its emancipation only upon its attaining economic supremacy. The same law operates also in the struggle between capital and labour.'

This language was removed from the constitution after 1921. Morehouse (1927, p. 16) stated that it was little more than a rallying cry to build up membership, although Budish and Soule (1920) attach greater significance to it.

⁹Braun (1947) contended that the unions accepted accommodation once they recognised that the welfare of workers depended on the welfare of the industry. Jacoby (1983) and Fraser (1991) argued that union-management co-operation occurred only in industries facing declining markets. McKelvey (1952) and Fraser (1991) credited shared experiences on War Labor Boards as helping to establish mutual trust and respect needed to conduct collective bargaining. Slichter (1941) gave predominance to the need to stave-off non-union competition.

²General note: all footnotes designated by record group, box number and file folder are housed at the Labor-Management Documentation Center, Martin P. Catherwood Library, Cornell University, Ithaca, NY.

³Hopper and Armstrong (1991, p. 428) acknowledged the co-operation between labour leaders and owner/managers but noted the paucity of empirical work in this area. Their comments refer to the early 1930s:

'The literature so far lacks a systematic account of the use of accounting information in formulating policies designed to preserve the accord with primary sector labour.'

⁴Fraser (1991), Josephson (1952) and Carpenter (1972) examined industrial relations in the men's clothing industry. Myers and Bloch (1942) discussed reasons why the accommodative approach was attempted and proved so successful in this industry.

⁵See Levine (1924), Berman (1956) and Carpenter (1972) for a detailed discussion of the Protocol Agreement and a history of the ladies' clothing industry.

ACW tried to penetrate the Rochester market because of its importance within the industry.¹⁰ Success was finally achieved when William Z. Ripley and Louis F. Kirstein arbitrated a wage dispute at two Rochester firms in July 1918. Their decision raised wages between 10% and 20%, specified time and a half for overtime, and mandated a minimum wage of \$12 a week for 48 hours of work. The arbitrators represented the Wage Adjustment Board (Board) and applied their decision to the entire Rochester market in order to achieve wage (and cost) uniformity.

The 1918 award stated that 'the arbitrators will continue to make further adjustments in the direction of standardisation', a provision that typifies the Board's attempt to introduce principles of industrial democracy (ACW, 1920, p. 41). For example, the Board supported contracts stipulating collective bargaining, equal pay for equal work, an eight hour day and the elimination of child workers. In addition, the Board actively promoted standardisation as a way of minimising wage-related disputes and facilitating government contracts (Fraser, 1991). The formal attempts to standardise wage scales and earnings in Rochester and between competing markets that began in late 1918 received the ACW's full endorsement and support.¹¹

The first comprehensive, city-wide contract between the RCE and the ACW was signed in January 1919 and included all but one major Rochester clothing manufacturer. The two-page agreement entitled workers to bargain collectively, belong to outside organisations and elect their own representatives. It established grievance and arbitration procedures, reduced the working week to 44 hours, and prohibited work stoppages. Matters that could not be resolved by the shop chairman and labour manager were referred to an Impartial Chairman, an individual who was jointly appointed by the ACW and RCE and whose arbitration decisions were accepted as final and binding on both parties.

¹⁰According to the 1921 US Census, Rochester was the fourth largest manufacturing market according to value of product, but led the nation in number of wage earners per establishment (Morehouse, 1927, p. 41).

¹¹'Letter from Ripley to Jacobstein, August 30, 1918', 'Letter from Ripley and Kirstein to Hillman, November 18, 1918'. (Record Group 5619, Box 4, File Folder 47). A. I. Pearlman, manager of the ACW's Joint Board of Rochester, wrote to J. Potofsky, the assistant general secretary of the ACW asking for information on the prices of various operations that prevailed in other cities. Potofsky responded that (Letters to and from Pearlman and Potofsky, November, 1918),

'Each clothing centre has a system of its own, grades of its (sic) own, prices, piece and week work of different kinds that make comparative rates an utter impossibility. ... What you want to do is to equalise the rates in the different shops of Rochester so there would be no competition between employers and the workers.'

The Agreement's most important provision regarding standards contained the following key statement (ACW, 1920, p. 46):

'... the matter of wages shall be subject of a conference. ... In the event of a failure to agree it shall be subject to arbitration as provided in this agreement'.

This clause established the precept that all wage-related issues would be eligible for compulsory arbitration. Consequently, skill levels, piece rates, week rates and standards of production had to be identified and negotiated for approximately 100 different suit and pants making operations.¹²

The ACW's willingness to accept piece rates and standards of production may appear perplexing, but a system of negotiated standards was a substantial advancement for workers who had experienced sweat, task and drive environments.¹³ Despite concerns about potential abuses, delegates at the ACW's 1920 convention overwhelmingly endorsed the week work system with standards of production.¹⁴ In an interview conducted shortly

¹²The phrase 'standards of production' represented a wage scheme in which workers were paid according to standard times rather than actual times or, alternatively, where workers received different hourly or weekly rates of pay for different levels of output (Slichter, 1941, p. 283). According to Carpenter (1972, p. 91), the 'organised forces' of labour and management sought standards as protection against 'illegitimate' competitors that abused piece rates.

¹³At the ACW's 1920 Convention, delegate Blumberg discussed the advantages of week work with standards over the task system (ACW, 1920, pp. 349-350):

'Under the task system, as I worked under it, the employer told me that for \$3 I had to operate 20 coats. Whether I worked a day, two, or three days, I got \$3 for 20 coats. ... Under a system of standards, the workers decide what a day's work should be.'

¹⁴Although several delegates stated that standards would be a 'return to slavery' and would be used to 'exploit labour', the ACW's leadership and the majority of delegates spoke in favour of standards. The following comments were included in the Convention Proceedings (ACW, 1920, pp. 344-352):

'... without standards of production, many workers in New York had been laying down on the job and not producing a fair day's work ... a combination of the week work system and standards of production would be the salvation of the industry ... standards of production would be made by the workers themselves ... the Amalgamated would see that the standards of production were fair ... it would bring about a uniform system throughout the country ... it would standardise conditions all over the country ... the Amalgamated would see to it that the standard was not too severe.'

General Secretary Schlossberg's remarks reveal his support for standards:

'It is now our responsibility to establish order in the industry, in the place of the chaos created by the employers when they had things entirely their own way. ... The establishment of standards means nothing more nor less than defining in a clear, sensible and intelligent manner the situation as it is today, and eliminating from this situation all the disharmony which exists in the factory, and which is caused by the prevailing vagueness.'

after the convention, Sidney Hillman explained why the ACW endorsed standards (Levine, 1920):

'Standards? Why, yes! We want them. Labour has always been for them. Whenever rational standards exist in industry, labour has helped to make them. It is quite natural. Standards make for law and order, for uninterrupted and efficient production. That is what labour wants and what unions are for. We have declared for standards of production because of our faith in unionism and not in spite of it. . . .

In a measure, there are certain standards in our industry today. They may be called customary standards. They represent current ideas of what should be expected of a workman on a given job. These standards are vague and uncertain, but they can be taken as a point of departure. Experimentation and scientific observation will soon show where these customary standards fall short and how they must be modified. We shall engage the services of industrial engineers and experts to insure the best results possible.'

The original Rochester Agreement was renewed in August 1920 with only minor changes. It reaffirmed collective bargaining, recognised the ACW as the bargaining agency, and prohibited strikes, lockouts and work stoppages. It specified that the Labor Adjustment Board would be comprised of ACW and employer representatives, and gave each side one vote regardless of the number of representatives. Employers were empowered to hire, discharge and suspend employees, but disputes over discrimination or unjust treatment could be brought to arbitration. The Agreement also indicated that home work would be abolished and that work would be equally divided during slack seasons whenever practicable.

Several provisions in the 1920 Agreement directly affected piece rates and production standards (ACW, 1922, pp. 151-3). Article 5 established prior earnings as the benchmark against which new methods, standards and piece rates would be evaluated:

'The right of the employer to make changes in shop management and methods of manufacturing is recognised; such changes to be made without loss to the employees directly affected.'¹⁵

¹⁵Straus (1949, p. 48) described how method changes were treated and how piece rates were established at the Hickey-Freeman Company in Rochester:

'Whenever the job is changed too much for the worker to reach his accustomed earnings at once, he must be put on a week-work basis until he has been able to build up speed. As in the case of piece rates, week-work pay is determined jointly by (the) union and company and is set individually in each case.'

Article 12 specified provisions that would be exercised when earnings were found to be incongruent with skill differentials:

'... any adjustment of wages of individuals or sections that may be necessary in order to remove serious and unjust inequities in pay may be made at any time during the life of this agreement'.

Article 11 justified the RCE's March 1921 petition for a general wage reduction of 25% due, allegedly, to a 'terrific slump' in the prices of clothing, a decrease in the cost of living and a '25% to 50% decrease in the number of garments manufactured' (ACW, 1920, pp. 151-3).¹⁶ Employers also requested that more workers be paid according to output (piece work) rather than time (week work), since the change 'cannot be made except by mutual agreement and few of the employees agree to the change'.¹⁷ The ACW countered that 'through the co-operation of the Union under the agreement, week-workers have been put on standards of production or changed to piece-work', and that the Union had helped hold down wages during times of labour shortages.¹⁸ Clearly, the motivation and ultimate beneficiary of changing from a time to output based payment scheme remains contentious. What is more certain is that the collective bargaining apparatus helped to ensure that neither pay scheme would become excessively one-sided.

¹⁶Article 11 stipulated that,

'Upon the petition of either party, any adjustment of wages of individuals or sections that may be necessary in order to remove serious and unjust inequalities in pay may be made at any time during the life of this agreement'.

¹⁷Record Group 5108, 'Case No. G-4 Wage Adjustment—Fall Season—1921'. Piece-rate schemes were favoured by employers because they led to significantly higher output. They also had the potential to produce greater earnings for workers. Although Sidney Hillman, president of the ACW from 1914 to 1944, never publicly supported piece rates, he did endorse standards of production (ACW, 1920, p. 352):

'I believe that what is understood by week work is the privilege of the individual to lay down on the job if he so desires. . . . The organisation (ACW) cannot check the individual unless there is a record and a standard. . . . We worked out a program that will protect us from ruinous effects upon health, will protect us from a situation where in the same shop one worker makes \$20 and the other \$120. . . . Under the production standards, inefficient management will be charged against the employer as it should be. . . . we want standards for our people, standards of health, standards of living, standards of conditions and we are also ready to establish standards of production.'

¹⁸The ACW's contention is supported by Meyer Jacobstein, labour manager at the Stein-Bloch Company in Rochester during the early 1920s. At a meeting of the Taylor Society in Rochester on 20 May 1920 Jacobstein (1920) stated that,

'Our co-operative arrangement has tended to stabilise the labour market. For if there had been no organisation of labour in Rochester co-operating with the employers, I'm sure that wages would have been much higher than they are today. I know that this is true because non-union plants are paying higher wages.'

In remarks prefacing his decision to the RCE petition, Leiserson noted that approximately 45% of employees were paid on a piece work basis and about 20% of week workers were paid according to standards of production. He stated that the earnings of week workers were 20%–25% lower on average than employees who were paid by the piece, that 'the production of week workers is lower still', and that payment by output was the best way to increase earnings, reduce costs and bring the industry out of its depression.¹⁹ Leiserson eventually ruled that (ACW, 1922, p. 158):

'Employers may require workers on any operation in the coat, pant and vest shops and all others included under the agreement . . . to work on a basis of measured production which fixes the unit cost per piece in line with the existing piece rates in the market.'

According to Morehouse (1927, p. 91), the majority of workers accepted Leiserson's decision because they felt protected against rate cuts by the system of compulsory arbitration.²⁰ In addition, the cutters, who were among the highest skilled clothing workers, continued on week work with standards of production, while off-pressers were kept at relatively high wage scales of \$41, \$43 and \$45. The \$41 scale fixed the quality of work for off-pressing; the other scales were available if proportionately more coats were pressed. Proportionate reductions from scale were also authorised.

In February 1922, employers tried to obtain exclusive control over critical manufacturing procedures, to rescind several contractual provisions that were most favourable to workers, and to reduce earnings by 25%.²¹ Notwithstanding these intentions, the Agreement signed in April 1922 perpetuated all non-monetary gains the union had achieved, despite the presence of an unfavourable business climate. In fact, the agreement expanded the commitment to collective bargaining, although

wages were reduced by approximately 15%.²² Article 6 did specify that employers could initiate changes in management and methods, but these changes could not cause 'loss to the employees directly affected'. Prior earnings continued to serve as the benchmark in adjudicating wage-related disputes. Furthermore, Section B of Article 10 prohibited changes in piece rates, standards of production and wage levels of week workers without 'mutual consent'.

The next section of the paper discusses the Rochester arbitration case decisions in detail and shows how the collective bargaining process, as manifest in these decisions, moderated the speculative claims made by Harrison (1921), Taylor (1915), and other proponents of scientific management. William Leiserson, Rochester's first Impartial Chairman, clearly described how he interpreted and implemented scientific management (Leiserson, 1920, pp. 164–166):

'A really scientific method of fixing wages is one that will put together the management's idea of a fair rate, and the workman's idea of a fair rate. . . . In this market we have decided—rather I have decided in interpreting the agreement—that a man is entitled to be paid for the work that he does and not that which he can do.'

The Rochester arbitration cases²³

The Rochester arbitration cases are dated from 9 September 1919 to 3 December 1926. Although 647 of the 2,208 numbered cases are undocumented, Morehouse (1927, p. 74) stated that numbering gaps are explained by 'the not infrequent adjustment of complaints prior to the hearing and award'. In actuality, the undocumented cases may have been adjudicated, suspended, adjusted without hearing, dismissed, withdrawn or left pending.²⁴

²²Article 9 stated that,

'The duties and jurisdiction of the arbitrator are fixed and limited by this agreement. He shall have no power to enlarge such jurisdiction unless by mutual consent of the two parties.'

The ACW interpreted this article to mean that the Impartial Chairman could no longer reduce wage levels and that (ACW, 1922, pp. 163–4):

'Basic piece rates, standards of production, and wages of week workers may not be changed except by collective bargaining between the two parties.'

²³All cases are contained in Record Group 5108 and are located at the Labor-Management Documentation Center, Martin P. Catherwood Library, Cornell University, Ithaca, NY.

²⁴Undocumented cases are also widely disproportionate over the seven year timeframe. Only 52 of the first 822 cases are missing from the data set, while 140 of the last 156 cases are absent. The majority of the latter cases are one or two paragraphs in length, contain few comments, and deal predominantly with wage and rate setting requests.

¹⁹Morehouse (1927, p. 110) indicated that a 25% increase in earnings on transferring from week work to piece work was 'the custom, indeed the common rule. . .' Output increases of approximately 50% were also expected to occur after the transfer.

²⁰Edward Morehouse served as assistant labour manager of Levy Brothers Clothing Company in Rochester from November 1920 to September 1921 and had first-hand, participatory knowledge of the activities he describes.

²¹In a letter submitted to the ACW on February 23, 1922, Rochester employers sought (ACW, 1922, p. 161):

'Complete immunity from interference with the normal processes of manufacture, whether these have to do with methods of manufacture, with use of machinery and labour saving devices, with methods of measuring and determining what is a proper output of workers, or with other means of insuring efficiency and proper conditions of costs.'

Five men served as Impartial Chairman during the period under examination.²⁵ The precedent setting and most detailed rulings were administered by William Leiserson who later served as chairman of the National Labor Relations Board during Franklin D. Roosevelt's presidential administration. According to his biographer, Leiserson saw collective bargaining and industrial democracy as identical concepts that provided three advantages: 'protection for the worker, protection for the employer, and industrial peace for society at large' (Eisner, 1967, p. 39).

Each of the 1,281 decisions has been subjectively assigned to one of the descriptive categories listed in Figure 1, according to the issue identified in the case heading or to the issue perceived to be of central importance. The majority of cases were initiated by the union (85.6%) and most refer to wage-related issues (57.9%). Decisions appear to be about evenly split, with 343 rulings favouring the union, 360 favouring employers, and 578 representing a compromise. The following sections of the paper discuss selected cases deemed to be of greatest significance because of their pathbreaking nature or policy implications.²⁶ The cases are grouped by the categories shown in Figure 1 and are usually presented in chronological order within each category.

Rates, Scales and Earnings

Almost every issue reaching arbitration had a financial impact, be it a dispute over piece rates, a work stoppage concerning standards of production, or a discharge for poor workmanship. According to Morehouse (1923, p. 269), three principles were followed when adjusting or establishing rates:

- equal pay for equal effort in the market;
- conformity of changes in rates to changes in work;
- maintenance of previous or customary earnings on the operation.

Employers tried, usually without success, to reduce rates that were in excess of market averages or that resulted in excess earnings. For example,

Leiserson supported the union's request for a piece rate increase to meet the average market rate, even though the new rate produced higher earnings for exceptionally skilled workers (Case 13). The employer was denied a request to reduce a piece rate despite arguing that the rate 'enables the presser to earn more wages than is just as compared with other workers' (Case 236). Similarly, an employer sought to prevent a market-wide wage increase to a worker alleging that 'his earnings were already high enough' (Case 62). But Leiserson ruled for the union and wrote that the only time an increase could be denied is when piece rates for a particular operation at one shop should be lowered 'to equalise them with the market rates'.²⁷

On average, piece workers were expected to produce 50% more output than week workers and received 25% higher earnings when performing the same task (Case 386); however, disagreements often arose regarding the appropriate piece rate and level of output. In many cases, an investigative committee was able to resolve the dispute without arbitration. Committees were usually established on an ad hoc basis by the chairman and were comprised of persons approved by the employer and by the union.²⁸

A number of early cases dealt with wage scales for week workers. In Case 30, which was jointly submitted, the union sought a weekly scale of \$35 for off-pressers in pant and vest shops across the RCE market. Employers countered with a general wage increase of \$5. Leiserson ruled against the union and noted that in some shops off-pressing was done by machine, in others by hand. He stated that operations would have to be standardised 'to represent about the same kind or amount of work' before scales could be fixed.

Case 97 is typical of cases that challenge existing piece rates when work is added to a current operation. The employer provided 10 weeks of data to show that the workers' earnings had increased by an average of \$8.19 a week (21%) over December earnings. The union lost the case because it did not furnish data to support a rate increase or dispute the accuracy of the employer's figures. In Case 1,933, the arbitrator ruled that a

²⁵The following table indicates the case numbers, arbitrators and timeframes for the data set:

Case numbers	Arbitrator	Dates
1-549	William M. Leiserson	10/9/19—4/9/21
550-822	Allen T. Burns	12/9/21—26/4/22
823-1343	Charles W. Cobb	10/11/22—25/7/24
1344-2069	Robert L. Hale	26/9/24—28/5/26
2070-2208	Norman J. Ware	18/6/26—3/12/26

²⁶The selection of particular cases is necessarily arbitrary and subjective; however, an attempt has been made to maintain the spirit of the original documents and to represent them in a straightforward and dispassionate manner by including original language.

²⁷Leiserson continually reaffirmed the importance of the Agreement in settling piece-rate disputes. In Case 312 he supported the union's argument against a piece rate reduction for a new hire:

'Rates are fixed not for specific people but for an operation. Workers on the operation may come and go but the existing rates must remain until they are changed under the procedure provided by the agreement.'

²⁸As a result of Leiserson's May 1921 decision authorising piece rate schemes, a price committee was established to fix piece rates, classify operations according to skill level, and establish earnings norms and standards of production (Morehouse, 1927, p. 93). Committee decisions were binding on both parties when members could agree; otherwise, the arbitrator made a judgment.

Figure 1**Number of Cases and Nature of Disputes***

<i>No. of cases</i>	<i>Nature of the dispute</i>
866	Rates, scales and earnings
144	Work added
51	Week work changed to piece work
14	Work reduced
7	Job classification
356	Discharges, layoffs, suspensions and lockouts
39	Poor work, low production
29	Insubordination
6	Refusal to accept piece work
3	Blacklisting
129	Work stoppages
64	Division of work, work methods, agreement violations
53	Standards of production
31	Week work to piece work
19	Abolition of home work

*The number of cases exceeds the number of decisions because certain cases were withdrawn, dismissed, or adjusted prior to a decision.

higher rate should be negotiated for edge collar pressing despite the existence of a 'flat' rate in the shop, primarily because the collar constituted a new operation. Cases involving work reductions were treated in similar fashion.²⁹

Market prices clearly predominated over time study in establishing the propriety of piece rates. In Case 156, a sleeve sewer 'submitted himself' to a time study and accepted a higher rate that would maintain his customary earnings. The sewer never received the higher earnings because the labour manager contended that 'he had not been working at his normal pace but had deliberately slowed when the test was made'. The current rate and level of earnings were examined and found to exceed what most sleeve sewers were receiving and the increase was denied.

Disputes regarding time study data, methods and outcomes were frequent and often resolved through arbitration.³⁰ In Case 242, the employer's time study data and the union's 'estimate' agreed that additional work of about one-third had been added to an operation. In Case 637, the union contested the adequacy of a piece rate but presented no facts other than an estimate about the amount of work that had been eliminated and lost

the case. Time study data actually helped the worker by showing that a 25% rate increase was needed for additional work (Case 249).

Time study methods were contested because they produced a standard that yielded inadequate earnings (Case 629), and because they were based on the fastest worker in a section (Case 694). In this latter case, rates from other shops revealed 'the impossibility of the proposed rate'. In Case 670, the arbitrator (Burns) determined the appropriate rate for a new model of pockets by comparing a time study of the old and new model when both were done by the same man. Burns criticised the employer's time study methods because they showed that a new operation required no additional time (Case 724):

'The chairman observed both operations several times. The new one appeared to take longer. It could be made to seem the same length as the old one only by such a perversion of time study as was attempted to prove (sic) the two operations the same. To use time study figures submitted in this case is impossible. When the figures are used so illegitimately to prove a point all the figures are discredited.'

Time study data was successfully contested in a number of cases. A rate based on time study was ruled inadequate because it did not include a margin of about 10% 'to make sure workers' rights are protected' (Case 776). The employer was precluded from fixing a rate based on time study when a higher market rate for the occupation existed (Case 783) and was reproached for using time study data on a new operation without comparing the data to previous methods (Case 793). The employer was harshly criticised for conducting a time study at a time when workers

²⁹In Case 167, a committee established that it took one-third less time to complete the operation and they reduced the rate accordingly.

³⁰Morehouse (1927, p. 99) indicated that time study data was certainly not incontrovertible:

'The cases show that time study evidence was received with considerable scepticism by the arbitrator. The writer is inclined to share this feeling, in the case of the Rochester industry. The elements of the operations were frequently so complex and the conditions under which work was done so variable from day to day that the judgment of experts was often more reliable than the judgment of time-study men, no matter how dispassionate and fair the latter were.'

were given a bonus to increase production (Case 808):

'Such procedure by the firm not only violates the principles of the Agreement and collective bargaining but also obscures the facts necessary for fixing piece rates. This is especially reprehensible when the facts in this one house are all there is on which to base a decision. Under such circumstances a rate must be set which allows a sure margin of safety to the worker.'

Case 181 is noteworthy because it centres on the selection of data to evaluate the propriety of a piece rate. The union argued that an error had been made in fixing the rate because it failed to maintain prior earnings. The labour manager compared eight weeks of payroll data with data obtained several months earlier to show that earnings had increased slightly under the new rate. Leiserson ruled that a proper comparison should be based on eight weeks data immediately before and after the rate change. Consequently, Leiserson increased the rate by 10% on finding that earnings decreased by this amount.

There was no dispute that prior earnings had been maintained after new cutting rates were established in Case 386. Instead, the union argued that the effort level needed to achieve prior earnings was excessive and that piece rates should increase to match rates in other RCE shops. In his ruling, Leiserson reaffirmed prior earnings as the primary evaluative criteria:

'No other rule can be followed because rates in no two houses are the same and the work in different houses differs so that if rates in all the houses were equalized . . . The main purpose of the parties to the agreement in fixing the wage levels for the market is to secure substantially the same earnings for workers of equal skill and who exert about the same amount of effort in the various houses.'

In Case 234 an edge presser's wages were reduced below the scale of \$35 a week because his production was about 40% below the work of other edge pressers. The union objected that the man was giving the 'best day's work he can, even though he may be slow'. In a prior case, reductions had been authorised when standards of production were in effect, but in this case, the operation had not been standardised and the reduction was denied.³¹ The case is noteworthy because Leiserson

³¹Leiserson also denied the request for a rate reduction in Case 341. Employers always attempted to reduce pay for below-average production, but these reductions were denied unless standards of production had been set:

'In a number of cases . . . it has been decided and clearly explained that deductions from wages can not be made by the employer for alleged low production when no definite standard of production has been established by the agreement.'

discussed the use of average performance in establishing production standards:

'In the absence of such a standard either agreed upon by the parties or fixed by the Chairman it must be assumed that some workers will produce more and others less and the employer cannot use the production of the fastest man as a standard from which to reduce the wages of the slower people any more than the union could use the production of the slowest man as standard from which to ask increases for the faster people.'

While both parties may have accepted the concept of average workers or average production as the appropriate standard, disagreements still arose in application. The union sought a complete revision of the scale for cutting rates, which had been set by 'careful study', by arguing that, 'only the fastest men of the fast men were selected so that this force is a picked one and far above the average in their productive ability' (Case 386).

In Case 254, the employer invoked Article 12 of the 1920 Agreement by claiming that the \$58 weekly earnings for button sewers, which far exceeded the \$41 for 'the most skilled operations', was due to an error in the piece rate and not to the skill or speed of workers. The union countered that high earnings resulted from the fact that many of the girls threaded needles and twisted threads at home outside of working hours. Furthermore, the foreman admitted that he had told the button sewers to thread their needles at home. Leiserson acknowledged working more hours would generate higher earnings; however, he ruled that the earnings of button sewers had to be reduced:

'To fix rates in one house that permits button sewers to earn as much or more than skilled cutters, pressers, pocket makers and sleeve sewers is obviously unjust.'

Discharges, Layoffs, Suspensions and Lockouts

Over 350 cases relate to personnel actions initiated by employers, with poor work and low production alleged in 39 of them. The decision in these cases usually rested on the presence or absence of verifying production data. For example, Leiserson ordered the immediate reinstatement of a discharged worker with back pay and indicated that (Case 38):

'Even if it were true that the cutter's work was poor and below normal in production such charges cannot be determined at the present time.'

Blacklisting was the central issue in three cases. In Case 122, no evidence was provided for the dismissal of a pocket maker other than the fact that his former employer had requested his

dismissal. The arbitrator called for reinstatement with full back pay. A refusal to accept piece work was the central issue in six cases in which discharges were denied.³² In a typical case (228), Leiserson ruled that:

'It appears that the man has been working since June 22nd as a week worker. He refused several times to go on piece work. He cannot be compelled against his will to change from week work to piece work. He will therefore be reinstated with pay for lost time.'

Committee investigations played a key role in discharge cases. In Case 153, the union contested a discharge of a pocket maker who had been warned to stop wasting time and increase production to the level of other pocket makers in his shop. Leiserson upheld the discharge and referred to a committee report which indicated that the pocket maker 'does not turn out a fair day's work for the rate he is receiving'.

The principle of 'a fair day's work' determined the propriety of many disputes resulting in discharge.³³ In Case 315, Leiserson ruled that a collar shaper and baster was rightfully discharged after he consulted with other tailors and collar basters who indicated that the man's record 'is not a fair day's work'. However, Leiserson did not support discharges based solely on low production.³⁴ Burns supported a discharge when two seam pressers refused to get and return work at the 'dispatch board' (Case 715), but he ordered a reinstatement when two workers were not given an opportunity to increase production and earn the minimum wage (Case 811).

Cobb ruled that an over-staffed section caused a layoff and a loss in earnings and indicated that the employer 'should be more careful in this regard' (Case 1,033). Hale ruled that the closure of a shop amounted to an unwarranted discharge, 'and contrary to the rights of the employees' (Case 1,777). In this case, the employer had work available and was instructed to reinstate the workers and provide work at previous rates.

³²Leiserson's May 1921 decision authorised employers to establish piece rates for most operations; therefore, a worker's refusal to accept piece rates was no longer a sustainable defence after that date.

³³Although the employer was precluded from fixing a standard of production for a one-man operation (Case 323), Leiserson acknowledged that, 'The employer is entitled to a fair day's work for the wages he pays' (Case 369).

³⁴For example, in Case 332 Leiserson wrote that,

'... for low production there is adequate remedy, namely payment in accordance with output. Discharge is not justified except where the production is so low to establish a worker's incompetence'.

A discharge alleging worker incompetence was sustained when piece rates did not yield sufficient earnings to meet minimum wages (Case 588).

In another interesting case (1,820), a worker was discharged for arriving late to work, although there was disagreement concerning the amount of time missed. Hale directed that the worker be reinstated and that time clocks or other recording devices be installed, 'so as to furnish evidence that can not be disputed by either party should a case arise'.

Work Stoppages

Over 77% of work stoppage cases (100 of 129) were brought to arbitration by management, and of the 106 decisions, four favoured the union, 72 favoured the firms, and 30 represented some degree of compromise. Leiserson's comments in Case 71 typify a work-stoppage decision favouring the employer:

'It was provided in the collective agreement that stoppages should not occur, but that all complaints that could not be settled with the employer would be taken to the union and if necessary to the Impartial Chairman. The action of the pressers was therefore entirely unjustified....'

Division of Work, Work Methods and Agreement Violations

This category of cases concerns a variety of topics, including the subdivision of work and the introduction of new machinery. The 1920 Agreement stipulated that work would be divided during slack periods whenever practicable. This provision helped prevent the arbitrary assignment of jobs to favoured workers.³⁵ Case 87 illustrates how Leiserson applied this provision:

'Should there not be enough work available of the kind specified for each man it is understood that the men will perform other operations within or below their class to fill their time. If, however, there is a shortage in work for which the men are not responsible through a fault of the management the management shall make no deductions from the workers who have put in their full time in the shop, but who were not supplied with work on any day.'

In a typical case involving added work (Case 125), the union contested a rate reduction for a top presser who was required to operate two machines instead of one. An investigative committee determined that the output of both machines would normally be 200 pairs a day. A new rate was fixed that 'will enable the presser to earn somewhat more

³⁵According to Morehouse (1927, p. 160) this practice formerly 'menaced both the tenure of the jobs and wage standards. It was rooted in special privilege and arbitrary discrimination by management'.

per week than he averaged when operating one machine'.³⁶

In Case 346, the union contested the introduction of new methods and machinery which partially divided the off-pressing occupation.³⁷ The chief issue in the union's case appeared to be the impact of new technology on occupational control and skill levels:

'Admitting that the off pressers' scale of wages has not been reduced the union contends that their interests are nevertheless hurt because the pressers' skill is taken away by the division of the operation and he is made a part presser instead of an off presser.'

Alternatively, the employer argued that the current agreement authorised work method changes as long as wage scales were unaffected. The case was contemporarily recognised as highly significant: two full hearings were heard and the issues were explained in a three-page decision. Although acknowledging that the changes could have been handled more 'tactfully and efficiently', Leiserson referred to Article 5 of the Agreement in supporting the right of employers to make changes in shop management and methods of manufacturing regardless of their impact on existing occupations:

'Pressing is not the only operation that has been divided. Tailoring is divided into collar basting, shaping, first basting, etc. and all the other operations, originally the job of the tailor, have been divided or are being subdivided from day to day. . . . This is the method of economic progress and no decision of a union or an impartial chairman should stop or can stop the progress of industry. There is a certain amount of loss of skill from this splitting of the operations but that is inevitable and in place of it the worker gains the efficiency that comes from specialisation. As long as the pressers' scale of \$41 a week is paid it must be held that they have suffered no loss as required by the agreement.'³⁸

A number of cases directly address the issue of subdividing operations. Although the union contended that an operation was subdivided in order to lower the rate, Leiserson allowed the employer to alter work methods but did raise the rate on

the subdivided tasks in order to maintain prior earnings (Cases 548 and 685). In Case 854, the union complained that a special order cutter's wages were adversely affected by special conditions. The employer responded by eliminating clerical work, measuring goods, returning patterns and marking changes on the instruction ticket. The arbitrator felt that these changes would enable the cutter 'to make a substantial increase in his earnings'.³⁹

Standards of Production

Cases listed under this category indicate how time study was used, when production standards were set, and how standards were tied to earnings. These cases reveal that standards were set jointly, were based on the performance of average workers or average production, and were adjusted to maintain quality levels.

In a jointly submitted case, Leiserson argued that the same wage scale could not be fixed for a particular operation across the Rochester market because it was not standardised to represent 'about the same kind or amount of work' (Case 30). This decision favoured employers who would have been forced to raise the wages of those receiving less than scale.

Contractually based wage scales and existing standards of production were a key factor in resolving disputes. In Case 34, the employer tried to pay a tailor (Joseph Stein) \$6 less a week than the contractual scale of \$40 because Stein's work was 'poorer in quantity and quality'. A committee acknowledged that Stein 'is an average tailor but has lost some of his skill'. Leiserson ruled that Stein's wages could be reduced, but not to the full extent requested:

'No records of production or quality of work or other convincing evidence were presented on behalf of the employer to prove the contention that Stein (is) entitled to \$6 or \$7 a week less than the scale. Until standards of production are established for the shop by which it will be possible to measure the

³⁶It is noteworthy that the requirement to operate two machines instead of one was not directly contested. Article 5 of the 3 August 1920 Agreement stipulated that the employer had the right to make changes in shop management so long as they were made 'without loss to the employees directly affected'.

³⁷According to Morehouse (1927, p. 155) workers offered little resistance to the installation of new machinery because,

'the employer usually enlisted the active co-operation of the shop chairman and gave certain guaranties (sic) against loss of jobs, earnings, or idle time, all of which forestalled resistance'.

³⁸Leiserson reaffirmed the right of employers to make changes and maintain earnings in Case 400. His comments appear to be directed at those arguing about abstract principles rather than about contractual obligations:

'No case of this character can be decided in the abstract, but the conditions in the shop concerned and the character of the workers involved must be considered. Decisions made by the Chairman must apply to particular cases and no general principles can be laid down in a decision except as they apply to particular circumstances.'

³⁹Morehouse (1927, p. 113) noted that employers often subdivided work in order to reduce labour costs by hiring learners for the less skilled parts of the operation. The contractual provision that the level of earnings must be maintained protected existing job holders from this practice, although several cases reveal that job splitting did encounter resistance.

relative efficiency of the man's work, the Chairman will fix his wage at \$38.⁴⁰

In Case 65, the union argued that five of six cutters, everyone but the foreman's brother, were not receiving the contractual wage scale of \$41 a week. The foreman argued that those receiving less than \$41 were inefficient. Leiserson's ruling indicates how standards of production could benefit workers' interests:

'The records submitted by the foreman were entirely unsatisfactory as a basis for the wages paid to the different cutters. They did not show that any definite standard of production had been established by the firm by which the efficiency of the cutters was graded and they did not show that men who produced more or less than the standard were paid more or less [in] proportion.'

In Case 83, the labour manager contended that the weekly output of off-pressers had fallen below agreed-upon standards of production. The union felt that the current work was harder and that earlier standards no longer applied, but provided no data to support its position. Leiserson ruled that wages could be reduced in proportion to the decrease in production below the standard of 50 coats a week.⁴¹ His comments in Case 87 indicate that production data may have been kept by employers and workers independently:

'Should production fall below the amount agreed upon when the firm supplied the work, reductions will be made in proportion to the decrease in production, and increases in production above the standard will be similarly compensated. Records of production will be kept by the firm and the men.'

Case 101 was brought on behalf of a group of cutters who had their wages reduced by varying amounts, because production was below the 'normal' standard of the prior month. Leiserson ruled that cutters were entitled to maintain their regular wages while production was being measured and until a standard of production could be agreed upon or was set by arbitration. The following comments disclose that standards were to be set jointly:

'The December wage adjustment provides that standards of production shall be set jointly for each house by the employer and the

Union. If the Chairman were to approve the increases and reductions made by the employer on the basis of time allowances not jointly agreed upon, it would be in effect fixing a standard of production for the house when that question has not been submitted for arbitration and is still under negotiation by the parties.'⁴²

Case 138 typifies the motivation and procedure for establishing standards of production. In this case, the employer wanted to fix a standard of 42 coats a week for off-pressers in the overcoat shop, rather than 38 a week, alleging that the work involved fewer operations than off-pressing in the sack coat shop. As a result of a committee's report, Leiserson set the standard at from 41 to 42 coats a week 'to put them on an equality with the men in the sack coat shop'. The equality referred to the amount of work effort since off-pressers' earnings were already standardised across the market.⁴³

Case 284 contains crucial language regarding production standards set by arbitration. In this case, a committee could not agree on a particular figure and Leiserson applied the principle of equal pay for equal work:

'The Chairman must take for his guidance what an average edge presser in the market can do working normally. The pressers involved in this case are no better and no worse than the other edge pressers in the market and for the same work they should get the same pay as others. And similarly for the same pay they should do the same amount of work.'

The concepts of 'average worker' and 'average work' were frequently invoked to evaluate the reasonableness of a production standard.⁴⁴ In Case 323, a committee could not assign a standard for shaping done by one worker. The chairman then asked two foremen to examine samples of his work

⁴²The importance of jointly determined standards was also emphasised in Case 281:

'In several decisions it has already been held that the employer alone can not set a standard of production. It must be jointly agreed upon or else fixed by the Chairman. In the absence of a standard of production established in accordance with the agreement no deductions from the regular weekly wages are justified.'

⁴³Case 525 specified how standards were to be revised and how both parties were to reach arbitration:

'Once a standard of production is agreed upon, neither side has the right to change it without consent from the other. If a change is desired, a request must be made to the other side and then if no agreement can be reached, the request is to be taken to the Chairman.'

⁴⁴For example, in Case 443, a committee representing both parties 'was appointed to investigate the work and the rates and this committee reported unanimously that an average man could shape about 200 collars a day of the work as done in this shop'.

⁴⁰Employers were empowered to file a complaint seeking standards of production in order to justify complaints alleging poor workmanship; however, working below standards could not be used to force an employee to go on piece work from week work (Case 193).

⁴¹Standards of production were used to reduce wages when a full week's work was not available (Case 326), and to increase wages when production exceeded standard amounts (Case 395).

and they stated that 'if the man was averaging around 80 a day he was doing a good, fair day's work'. Notwithstanding, Leiserson declined to establish standards of production:

'It is not deemed advisable to fix a standard for a number of reasons. In the first place there is only one man in the section and it is difficult to determine whether he is an average worker or not. . . . Most important, however, is the fact that apparently the man has been doing all that he could running up to 90 when the work was easy and down to 70 when it was hard. To establish one fixed number for every hour would be neither fair nor efficient under the circumstance.'⁴⁵

In Case 350, Leiserson responded to an employer's request to set a standard of production for shaping. Both the union and employer committee members could not agree on what a fair day's work should be so Leiserson invoked the concept of 'average work':

'The Chairman does not believe that a man should be expected to turn out the same amount of work every day. The standard set therefore is that an average between 70 and 80 a day should be maintained.'

Case 644 is noteworthy because it shows how standards of production helped female employees increase their level of earnings.⁴⁶ In this case, the union argued that a woman top collar baster was not being paid the wage scale even though she was producing as much as the men in the section. The labour manager responded that no standard had been set for this operation and that 'the practice of the market was to pay women less than men on the scaled operations'. Burns noted that pay differences had been 'accepted practice' and were based on the assumption that women did not produce as much as men. However, when standards were in

place, women were authorised to receive equal pay for equal production:

'If a standard were fixed and the woman's production equalled the standard, she would be entitled to the scale. But no standard has been established as must be done before workers previously recognised as not entitled to the scale can be given the scale by the Chairman.'

Standards were adjusted to reflect changing skill levels in the labour market (Cases 689 and 690). Burns noted that the original standard for off-pressers had been 50 coats a week, but when experienced off-pressers had become scarce, 'This standard had been gradually lowered to 46 in order to preserve quality.' Burns restored the original standard because the off-pressers were now more experienced and able to meet earlier levels of output.

Week Work to Piece Work

Prior to Leiserson's May 1921 decision, workers could not be forced to accept piece work and few cases hinged on this issue.⁴⁷ The majority of piece-rate cases dealt with the level of earnings following the conversion from week work. In many cases, a committee of union and employer representatives resolved the dispute prior to arbitration. In others, the arbitrator usually picked a rate that fell between the two contesting positions.⁴⁸ At any rate, the criteria discussed in Case 68 were consistently applied:

'This rate will enable them to maintain their former earnings and at the same time they will not be getting paid more than other pocket makers get in Rochester for the same work.'

Several other cases are noteworthy. Top collar basters were given a bonus over their daily production as an inducement to accept piece work (Case 462). In Case 479, the union contested a piece rate when earnings did not increase. Leiserson concluded that because the workers seemed content to maintain week-work levels of output, piece rates were proper. In Case 634, the union unsuccessfully argued that a piece rate was inadequate because workers 'were making piece work speed while on week work' and production increases could not be expected.

⁴⁵In a similar Case (347) Leiserson declined to establish a standard for a two-man section. This case is noteworthy because it involved an employer's attempt to reduce the wages of an older worker who a committee reported 'is probably doing all the work he can do and that he is slower than an average man'. Leiserson disallowed the wage reduction as long as the man maintained the prior year's level of output.

⁴⁶Morehouse (1927, p. 143) described this case as 'one interesting exception'. In a later case that Morehouse did not discuss (1,602), Hale stated that the employer was not justified in paying a lower scale to female workers. Hale reinforced earlier rulings by writing that,

'The Arbitrator finds no reference in the scale on this operation to any distinction between men and women and is obliged to hold that the scale applies to both; and the only question that can arise is one of production. This can be provided for in the setting of a standard or by piece work.'

⁴⁷For example, employees could not be compelled to accept piece work against their will (Case 39), nor be discharged for refusing to accept piece work (Case 193).

⁴⁸Case 540 shows how piece rates were set at arbitration: 'The production on this operation on week work was 120 a day. At the scale of \$30 a week, this gave a cost per piece of 4½ cents. On piece work the production would normally go up about 180 a day, and if the saving thus were made equally divided between the worker and the firm, the rate would be about 3¼ cents.'

Abolition of Home Work

Article 17 of the 3 August 1920 Agreement specified that home work was to be abolished. This was accomplished, in part, by raising shop workers' levels of earnings. In Case 221, piece rates were set for buttonhole makers such that the average wage for all workers would be about \$35 a week. This rate increased earnings by about 10% so that buttonhole makers would choose to work in a shop or factory rather than at home.

Discussion, summary and conclusions

Recently, several noted scholars have argued, in a general way, that time study, production standards and standard costs were developed according to technical criteria, were imposed on labour without their consent, and were intended to intensify the work effort (Hopper and Armstrong, 1991; Miller and O'Leary, 1987). In the case of the US men's clothing industry of the early 1920s, however, these procedures were regulated by a collective bargaining process that included compulsory arbitration. The process was sustained because these procedures were jointly determined and they provided tangible benefits to workers and to owner/managers.⁴⁹ Workers increased their earnings, worked fewer hours and received fairer treatment in resolving disputes; owner/managers achieved a more stable labour force, greater output, and a better understanding of costs.⁵⁰

Prior to the implementation of standards, clothing workers faced much harsher working conditions and were regularly subjected to favour-

itism and discrimination, task and drive systems, and piece-rate reductions.⁵¹ Thus, standards and other scientific management procedures were favourably received by most workers because they significantly improved on earlier practices. In addition, these procedures emanated from shared war time experiences and were adjusted to recognise changing market forces (McKelvey, 1952).⁵² Morehouse (1923, pp. 267–268) discussed the impact of market forces on the arbitration process:

'In the determination of wage levels the union held the upper hand up to the middle of 1920, when the market began to feel the general business depression. During this period the arbitrator had to restrain the union from pursuing its advantage. Since 1920 the economic power of the union has relatively declined, through reduced employment and reduced earnings, and the arbitrator has had to restrain the employer from reducing wages.'

While the US clothing industry is recognised for its long-lasting and generally co-operative industrial relations, worker participation in the development of piece rates and production standards was not unique to this industry. The National War Labor Board in 1920 established the right of workers to organise and bargain collectively through chosen representatives. The Board directed that bargaining subjects would include job content, wage schedules and piece rates.⁵³ Hoxie's (1915) contemporary investigation also indicated that scientific management practices were rarely, if ever, implemented without modification or the

⁴⁹Fraser (1983b, 546) more generally suggested that organised labour supported standards as a means of controlling mutually destructive competition:

'More established manufacturers favoured standardising wages, hours and working conditions throughout the industry in order to put a floor under competition. But no manufacturer or group of manufacturers possessed the market power or moral authority to introduce such labour and product market stability itself, certainly not nationally and only episodically in some local markets. Only a union exercising constant surveillance over the industry's labour markets and shop-floor practices could curb its natural tendency to anarchic and destructive competition.'

⁵⁰Regarding the benefit that piece rates and standards of production provided to some workers, the ACW staff wrote (ACW, 1926, p. 106):

'Rochester is only recently a piece-work market, having been converted to piece work in 1921. A substantial number of operations particularly in the pants and vest shops, still remain on week work. For these operations there was no agreed-upon scales of wages. Newly hired week workers, therefore, were not protected by standards of wages as are the piece workers...'

⁵¹See Fraser (1991) for a full discussion of the men's clothing work environment before and after standards were implemented.

⁵²Fraser (1984, p. 412) described how macro-economic issues affected work conditions in the men's clothing industry:

'By 1932, the industry was functioning at 30% of capacity, 50% of the workforce was unemployed, and unemployment reserves were exhausted. Wages had fallen between 40% and 50%, bankruptcies had become epidemic, and the union could barely support itself. All the worst abuses of the pre-union era reappeared including fratricidal competition, sweatshop labour and homework, sub-contracting, and the spread of runaway shops.'

⁵³Fraser (1983, p. 219) attributed the Board's directive to the need to ensure production during World War One:

'The moulding of the ACW was part of a more general wartime proliferation of collective bargaining arrangements sanctioned by a government worried about labour shortages, escalating rates of labour turnover, and the rising tide of labour unrest and strikes. . . . They experimented with methods of redeploying managerial authority, sometimes through coercion but more often through mechanisms of voluntary compliance.'

workforce's input.⁵⁴ Several prominent US engineers of the day even advocated the development of standards through collective bargaining and recommended that workers hire their own production engineers when conferring with management.⁵⁵

Clearly, there are many factors that explain the genealogy of production standards and standard costs in the US men's clothing industry. The industry continually faced severe price and cost competition from start-up firms and immigrant labour, respectively. Most manufacturing businesses were small, with ownership and management in the same hands. Class boundaries were vague, start-up costs were not prohibitive, and the line of demarcation between employer and employee was easily crossed, in both directions, by jobbers and contractors (Braun, 1947, pp. 75–77). The presence of these factors clearly facilitated personal interaction and probably contributed to an enduring collective bargaining experience. A different historical experience and class relationship may have produced a far less accommodative response by workers and their representatives to an identical set of productivity enhancing procedures.⁵⁶

Although the Rochester market may have been more stable, its businesses less diverse, and its employers more unified than in other locations, the same set of judicial powers were applied by arbitrators throughout the industry and collective bargaining agreements and arbitration machinery were comparable in all major markets. Across the industry, activities eligible for arbitration included wages, hours, distribution of work, norms of output, sanitary conditions and other labour-related issues (Zaretz, 1934, p. 221). Sidney Hillman served as president of the ACW from 1914 until his death in 1946 and participated in all major contract

negotiations. In addition, William Leiserson served as arbitrator in Baltimore, Cleveland, Chicago, New York, Boston and Montreal in addition to his work in Rochester (Fraser, 1991, p. 130).

Union-management co-operation was especially enduring in this industry (Jacoby, 1983), but standards were used throughout the needle trades and in other industries as well (Carpenter, 1972; Millis, 1942). It appears that whenever compulsory arbitration was effectively employed to resolve wage-related disputes, standards were rarely, if ever, determined according to purely technical criteria, nor were they implemented without workers' participatory consent (Hoxie, 1915; Nelson, 1991).

In non-union or company union environments, where workers had far less protection against piece-rate reductions and tightened standards, or in industries where standards were imposed without their input, the response to standards was often contentious.⁵⁷ Thus, this study supports Zeitlin (1987) and Nelson (1991) who conclude that the use of standards and other scientific management procedures varied widely in practice according to specific institutional factors and events. More particularly, this study contends that an industry's collective bargaining experience and arbitration machinery are among the most important of these institutional factors.

Historically, industrial relations and collective bargaining provisions have been quite varied within the US. During the 1920s, as mentioned, some companies prohibited outside representation by national unions while others only sanctioned company unions or prohibited them entirely. Future studies that focus on individual companies or industries, that contrast the US/UK experience, that examine materials prepared and used by participants, and that encompass relatively narrow timeframes are likely to further unveil the complex interface between collective bargaining and standard costing, budgeting, and other cost accounting practices.

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⁵⁴Hoxie (1915, pp. 52–53) also outlined the conditions under which the time study process benefited workers:

'The demonstration, however, of the unscientific character of time study and task setting does not at all prove that the method is necessarily impracticable or unjust to the workers. On the contrary, if the management is honestly seeking the best good of all concerned, and if the time study man is well trained, experienced, with good analytical ability, good judgment, and tact, there can be no question that time study promises much more equitable results than can be secured by the ordinary methods. Under such circumstances, it may create protective standards for the workers and act as a check on unreasonable and oppressive demands made by either side.'

⁵⁵See Cooke (1921) and Brown (1925) in this regard.

⁵⁶Barbash (1948, p. 115) noted that the presence of arbitration machinery did not ensure effective union-management co-operation in the automobile industry. In that industry, most differences were *not* resolved before reaching arbitration and the industry faced a large backlog of cases because of ongoing disputes. Lichtenstein (1993) similarly noted that the adjustment of piece rates and work norms was negotiable in men's clothing but not in the auto industry. Aitken (1985) described the resistance to scientific management at the Watertown Arsenal.

⁵⁷See Leiserson (1931) and Chamberlain (1948) for alternative speculative views on this matter.

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The Relationship Between the Comprehensiveness of Corporate Annual Reports and Firm Characteristics in Spain

R. S. Olusegun Wallace, Kamal Naser and Araceli Mora*

Abstract—Not much information exists in the international accounting literature on Spanish accounting. Spain is selected as a subject of study because it is different from those countries that are subjects of the research concerned with investigating the multivariate impact of firm characteristics on disclosure in annual reports and accounts. The conceptual model underlying our empirical tests is based on economic and political incentives for providing greater detail in corporate annual reports and accounts. The paper provides evidence that the amount of detail in Spanish corporate annual reports and accounts is increasing in firm size and stock exchange listing, and decreasing in liquidity.

Introduction

This paper has two main aims. The first is to report on the results of an investigation into whether the differences in the details offered on selected information items in the annual reports and accounts of Spanish firms are systematic, that is, whether the differences in the level of disclosure mirror the differences in firm characteristics. The second is to examine whether the firm characteristics found to be relevant in previous country disclosure studies are also implicated in Spain.

The procedure for measuring disclosure quality, in this study, is different from the one commonly found in previous studies. Instead of awarding one mark for the presence and zero for the absence of an item of information in a corporate annual report and accounts, as in previous studies, we emphasised the comprehensiveness of disclosure on each item by rewarding the depth of information provided in the annual reports and accounts of a sample of Spanish firms and so gave credit to the density (fullness) of information on each of the items selected for study. The scores on comprehensive disclosure are then related to the characteristics of sampled Spanish firms using rank regression procedures. The results suggest that

sample firms with higher (lower) structure (with asset size or total sales serving as a proxy) tend to offer more (less) comprehensive disclosure in their annual reports and accounts; those with higher (lower) operational performance as determined by liquidity tend to offer less (more) comprehensive disclosure; while firms that are listed on the Madrid and Valencia stock exchanges tend to provide more comprehensive disclosure than those that are not listed.

The paper is divided into six sections. The first section describes the accounting environment of Spain as a background for the rest of the paper. Section two provides a review of the literature. The third section describes the construct 'comprehensiveness of disclosure' and the manner by which it was captured. It also describes the data, model and reasons for examining the relationship between the index of comprehensive disclosure and some firm characteristics. In the fourth section, the statistical methodology is reported upon. The results are presented in section five and the conclusion is offered in the final section.

The accounting environment of Spain

The implementation by Spain of the European Union's (EU's) Fourth and Seventh Directives in 1990 has led to the abrogation of the obsolete 1973 General Accounting Plan and the production of a new General Accounting Plan. Unlike the UK, which permits firms a choice from four alternative formats of the profit and loss accounts and two alternative formats of the balance sheet, the new Spanish accounting plan allows firms no choice in this matter, in line with the country's orientation towards uniformity in accounting matters. In addition, the new accounting plan no longer requires

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the value of assets reported in the accounts to be the same as the value used for taxation purposes. A new Company Law (No. 19 of 1989) and the Commercial Code have also introduced into Spain the requirement that firms with a group structure should prepare and publish annual consolidated accounts.

Many of the most significant Spanish developments in the provision of audit services (and in corporate annual reporting) have only come in the last decade in conjunction with Spain's EU membership, the requisite, but enthusiastic, implementation of EU Company Law Directives, and the growing investment by multinational corporations (including international accounting firms) in Spain (Benau et al., 1993, p. 281). Both the Commercial Code (modified in 1989) and the new Company Law require that the published financial statements of firms of and above a certain size be audited. The regulation of auditing in Spain is governed by the Audit Law of 1988. Before 1988, there was no statutory requirement that corporate annual accounts should be audited.

The changes, described above, in the accounting, corporate reporting and auditing of financial statements between 1988 and 1990 are now transforming the published financial statements of Spanish firms. While it may be too early to evaluate the costs and impact of these transformations, the Spanish experience in this new mode of disclosure practice has gone on for three years and has reached a stage where it is possible to evaluate the extent and quality of such disclosure. This study is, therefore, an attempt in this direction. As discussion in the next section reveals, there is no information on the corporate disclosure behaviour of continental countries in the international accounting literature. Therefore, Spain would be a particularly interesting country in which to analyse the relationship between disclosure quality and corporate firm characteristics. Continental countries are culturally different—in non-accounting (Hofstede, 1980) and accounting (Gray, 1988) terms—from many countries that have been chosen as settings of previous research. So, it is possible to speculate that the incentives for discretionary disclosure may be fundamentally different in continental countries than in other contexts. In addition, Spanish accounting also has many distinct features. Apart from being a continental country with the Roman codified legal system, it has a comparatively younger and smaller accounting profession and its accounting is strongly influenced by taxation rules.

Literature review

The studies in international accounting journals (published in English) that have investigated the relationships between corporate characteristics

and the extent of disclosure have covered only six developed countries—Canada (Belkaoui and Kahl, 1978); Japan (Cooke, 1991, 1992, 1993); New Zealand (McNally et al., 1982); Sweden (Spero, 1979; Cooke, 1989a, 1989b); the UK (Firth, 1979a, 1979b, 1980; Spero, 1979); and the US (Cerf, 1961; Singhvi and Desai, 1971; Buzby, 1975; Stanga, 1976; Imhoff Jr., 1992; Malone et al., 1993; and Lang and Lundholm, 1993)—and three developing countries—Bangladesh (Ahmed and Nicholls, 1994); Mexico (Chow and Wong-Boren, 1987) and Nigeria (Wallace, 1987). This paper seeks to remedy the omission of Spain from this list. With the exception of the study reported by Lang and Lundholm (1993) that covered 2,319 total firm years (varying from one to five years per firm), all the studies focused on only one year per firm, and the number of firms in each study has varied from 14 to 527. In general, none of the studies, except Malone et al. (1993) on the oil and gas industry, was industry-specific. The firm characteristics that were examined as possible predictors of the extent of disclosure ranged from two to 11. Corporate size (surrogated by assets, sales and market capitalisation) is the most popular, featuring in all the studies. Other popular firm characteristics featuring in at least four of the prior studies include liquidity and profitability ratios, listing status, auditor type and industry type.

All the studies, except for Imhoff (1992) and Lang and Lundholm (1993), used a researcher-created dependent variable. Both Imhoff and Lang and Lundholm used disclosure indexes created by analysts. The information items forming the basis of the index of disclosure as a dependent variable in these studies varied from a minimum of 24 (Chow and Wong-Boren, 1987) to a maximum of 289 (Spero, 1979). Some of these disclosure indexes were weighted (either subjectively by the researcher(s) alone or by the researcher(s) using weights elicited from surveys of users' perceptions), while some others were unweighted. Spero (1979), Robbins and Austin (1986) and Chow and Wong-Boren (1987) have provided some proof that there may be no significant difference between weighted and unweighted disclosure indexes. In addition, weights do not usually affect real economic consequences to the subjects whose opinions were pooled (Chow and Wong-Boren, 1987, p. 536) nor do they reflect stable perceptions on similar information items across subjects, over time (Dhaliwal, 1980) and from similar subjects across countries (Firth and Meth, 1986, p. 178).

While earlier studies used the matched-pair statistical procedures to test the difference between mean disclosure indexes of two or more groups of sample firms (e.g., Singhvi and Desai, 1971; Buzby, 1975; Stanga, 1976), all the recent studies, beginning with Chow and Wong-Boren (1987), have used the multiple regression procedure and the

sophistication and rigour of analysis of the regression methodology are improving with time. For example, Cooke (1989a, 1989b) and Imhoff Jr. (1992) used different rigorous dummy variable manipulation procedures within a stepwise multiple (OLS) regression while Lang and Lundholm (1993) introduced the use of rank (OLS) regression to cater for the monotonic behaviour of disclosure indexes following a change in some independent variables.

The quality of disclosure in corporate annual reports and accounts has been represented in the literature by several constructs: adequacy (Buzby, 1974), comprehensiveness (Barrett, 1976), informativeness (Alford et al., 1993), and timeliness (Courtis, 1976; Whittred, 1980). Each construct suggests that the quality of disclosure can be measured along a continuum ranging from poor to excellent.

The changing features of prior studies, such as the number of firms included in the sample, the type and number of firm characteristics examined, the number of information items that formed the basis of the set of disclosure indexes as a dependent variable, the different statistical methodologies used to analyse the data and the different settings (i.e., countries) of the study, have jointly or severally contributed to the mixed results from these studies. As a result, an investigation, in other settings, of the corporate characteristics that correlate with the extent of disclosure seems justified.

Research design including definition and measurement of comprehensiveness

The plan of this study is to construct an index of comprehensive¹ disclosure of selected mandatory items as a proxy for disclosure quality for each Spanish firm in our sample and to relate the measure of disclosure quality to firm characteristics. We did this by examining and scoring the contents of annual reports and accounts of a sample of Spanish firms. Unlike the previous studies that have utilised a dichotomous (yes or no) procedure to evolve disclosure indexes, we emphasise the comprehensive nature of the disclosure on each of the information items selected for investigation. Rather than score just one for an item of information, we seek to reward the depth of information provided in the annual reports and accounts to give credit to the density (fullness) of

the information on each item. Non-comprehensive disclosure in an environment where greater detail is preferred could affect negatively the quality of securities that are traded in the stock market in conformity with the signalling hypothesis (Akerlof, 1970; Gonedes, 1978).

Data

The study focuses on 50 non-financial² Spanish firms. We requested the annual accounts of 100 non-financial firms randomly selected from a list of the 250 non-financial firms listed on both the Madrid and Valencia stock exchanges and 100 non-financial firms not listed on any of the two stock exchanges drawn randomly from the Register of Spanish firms. We received the annual accounts for 1991 of (a) 30 firms whose securities are traded on the floor of both Madrid and Valencia stock markets and (b) 20 unlisted firms.³ Data relating to the independent variables (discussed below) were collected from the annual reports and accounts of each sample firm.

List of Disclosure Items and Scoring Procedure for Deriving the Dependent Variable

Evidence from prior studies summarised in the previous section suggests that there is no agreed theory on the number and the selection of the items to include in a disclosure index to form the basis of our study. The selection was, however, governed by the requirements of the Spanish Accounting Plan of 1990 and the National Stock Exchange Commission. Although limiting the disclosure items to investigate to these requirements suggests that we may be restricting our evaluation to mandatory items,⁴ the evaluation procedure captures voluntary disclosure because the extent of detail released by each firm is determined more by an individual firm's policies than by the content of the Spanish Accounting Plan or the National Stock Exchange Commission. This is because of the absence of reporting guidelines on the comprehensiveness of required information items. For example, imagine these three possibilities: First, a

²We did not include financial firms because they do not possess characteristics (such as having an item that can represent what 'annual sales' can for non-financial firms) which make them comparable with non-financial firms.

³We included unlisted firms in our study to enable us to test the hypothesis that the corporate annual reports and accounts of listed firms would be more comprehensive than those of unlisted firms.

⁴We have chosen to focus on mandatory items because (1) Spanish corporate reporting has only recently started to emulate the practice, that has become popular in countries that were subjects of previous research, of providing more information than is required by the law; (2) we do not wish to penalise a firm for not disclosing an item that does not apply to it, and we do not know of any procedure for detecting this without accessing the firm's records; and (3) to include voluntary items may swamp the very thing we are looking for—the disclosure comprehensiveness of required items.

¹Comprehensiveness is a construct of quality. According to Imhoff (1992), quality appears to be an important attribute of accounting information. Although the meaning of accounting quality is ambiguous, many studies using the index of disclosure methodology suggest that the quality of disclosure can be measured and used to assess the potential usefulness of the contents of corporate annual reports. Imhoff (1992, p. 99) suggests that 'high accounting quality is closely associated with ... full financial disclosure'.

firm could disclose a required item of information as a one line item if that is the minimum required disclosure. Second, a firm could provide disaggregated information on the required item to reveal segmental detail that is not mandated. Third, in addition to the disaggregated information, a firm could provide explanation to enhance understandability of the disclosure on the item in notes to the accounts. On this basis, to measure comprehensiveness of the disclosure of mandatory information items is to measure indirectly voluntary disclosure.

The list of items was restricted to 16 mandatory ones upon which all sample firms reported, so as not to penalise any firm for not disclosing any item (as would have happened had we evaluated each firm on the basis of a normatively selected list). The score card was designed to reflect the details expected on each selected information item. These details were constructed after studying all the annual accounts of sample firms and incorporating the different sub-items that might be disclosed on an information item. The score card, therefore, was comprehensive and so no firm, in our sample, could give more information on an item than is included in the score card. The details expected on each item also varied from item to item.

The scoring⁵ rewarded both quantitative and qualitative information. Qualitative information, found in management discussion and analysis, notes to the accounts and details in other sections of the annual report, was rewarded on the basis of the words describing an item of information. If the words improve our understanding of the numbers in the financial statements, additional credit was given for such qualitative extension. The total score received by a firm was translated into an index by dividing this score by the total available points (79). The items included in the indexes of comprehensive disclosure were neither weighted by the perceptions of any user group nor by our subjective ranking of the importance of the different items for reasons already discussed in the previous section. The comprehensive disclosure indexes awarded to the sample firms, ranked in ascending order, are shown in Table 1. The indexes vary between sample firms and range from 29% to 80%.

Independent Variables and Testable Implications

Following Lang and Lundholm (1993), the firm characteristics considered as possible predictors of the indexes of comprehensive disclosure were classified, for analytical purposes, into three non-mutually exclusive categories: structure-related, performance-related and market-related variables. The relationships between each of these three types

of firm characteristics and the indexes of comprehensive disclosure are discussed below.

Structure-related variables. Structure-related variables describe a firm on the basis of its underlying structure—its size and its gearing. Structure-related variables are likely to remain stable over time. The structure-related variables in this study include two corporate size variables (total assets and total sales)⁶ and one solvency variable (gearing (debt/equity) ratio).

Although evidence from previous research (summarised in the previous section) provides overwhelming support for the hypothesis that there may be a positive relationship between firm size and level of disclosure, the theoretical basis for such a relationship is unclear. The direction of the relationship may be either positive or negative. On the one hand, theoretical argument suggests that large firms are visible and generally exposed to political attacks, in the form of pressure for the exercise of social responsibility and/or greater regulation such as price controls, higher corporate taxes and the threat of nationalisation (Jensen and Meckling, 1976). Firms may reduce the likelihood of political action through the disclosure of less detail in their annual reports and accounts. On the other hand, the argument in empirical research suggests that large firms may be influenced to disclose more information. As Buzby (1975) suggests, small firms may not possess the necessary resources for collecting and presenting an extensive array of information in their annual reports and accounts because such activities are usually costly. In addition, the management of small firms may believe more strongly that the disclosure of more detail could endanger their competitive position (Singhvi and Desai, 1971; Mautz and May, 1978).

A highly geared firm has a greater obligation to satisfy the needs of long-term creditors for information and so may provide more detail in its annual report and accounts to meet those needs than a lowly geared firm. According to Myers (1977) and Schipper (1981), the additional information is needed to allay the suspicion of bondholders that shareholders and managers are more likely to encroach on the claims that accrue to them (as creditors) through bond covenants.

Performance-related variables. Performance-related variables vary from time to time and represent information that may be of interest to accounts users. Examples of performance-related variables include liquidity ratio, earnings return, profit margin—features by which firms'

⁵The scoring instrument is available on request from the first author.

⁶We did not use market capitalisation as a proxy for corporate size because our sample included a set of Spanish firms that are not listed and so have no easily determinable market value. Corporate size is used, in this study, as a proxy for firm structure and visibility in line with the suggestion by Zmijewski and Hagerman (1981, p. 132).

Table 1
List of Sample Firms Ranked by Index of Comprehensive Disclosure

	<i>Name</i>	<i>Index</i>	<i>Rankinde</i>
1.	Jots	0.2911392	1
2.	San Miguel	0.3924051	2
3.	Siemens	0.4050633	3
4.	TV De Catalura	0.4177215	4
5.	Cetarsa	0.4303797	5
6.	Rank Xerox	0.4556962	6
7.	Citroen Hispania	0.4683544	8
8.	Caf	0.4683544	8
9.	Sabeco	0.4683544	8
10.	Mobil	0.4810127	10
11.	Tragsa	0.4936709	11.5
12.	Dupont	0.4936709	11.5
13.	Pirelli	0.5063291	14.5
14.	Tubacex	0.5063291	14.5
15.	Aldeasa	0.5063291	14.5
16.	Enresa	0.5063291	14.5
17.	CMB	0.5189874	18.5
18.	Hisalba	0.5189874	18.5
19.	Metro Madrid	0.5189874	18.5
20.	Mantutano	0.5189874	18.5
21.	Telettra	0.5316456	21
22.	Elecnor	0.5443038	23
23.	Canon	0.5443038	23
24.	Honda	0.5443038	23
25.	Gas Natural	0.5696203	25.5
26.	Dow	0.5696203	25.5
27.	Portland	0.5949367	28
28.	Argon	0.5949367	28
29.	Texsa	0.5949367	28
30.	Hidroelectrica	0.6329114	30.5
31.	Cristaleria	0.6329114	30.5
32.	Lain	0.6455696	32.5
33.	Ensesa	0.6455696	32.5
34.	Petronor	0.6708861	34.5
35.	Ercros	0.6708861	34.5
36.	Dragados	0.6835443	36
37.	Fomento De Obras	0.6962025	37.5
38.	Fomento De Construcciones	0.6962025	37.5
39.	Acerinox	0.7215190	39.5
40.	Fecsa	0.7215190	39.5
41.	Endesa	0.7468355	41.5
42.	Viesgo	0.7468355	41.5
43.	Iberdrola II	0.7594936	43
44.	Cepsa	0.7721519	44.5
45.	Aguas De Barcelona	0.7721519	44.5
46.	Sevillana	0.7848101	46.5
47.	Fasa Penault	0.7848101	46.5
48.	Bendix Espana	0.7974684	49
49.	Union Fenosa	0.7974684	49
50.	Iberdrola I	0.7974684	49

performance over time can be identified. Both earnings return and profit margin are specific measures of market success. While earnings return relates profit before tax to net assets (or outstanding equity), profit margin refers to profit before tax divided by sales. A firm may release information

relating to its relative competitive performance by indicating which of its product lines is more profitable than the others. As Singhvi and Desai (1971) argue, higher earnings return or profit margin would stimulate managers to report more detailed information because they would want such

Table 2
Descriptive Statistics for All Variables

Unranked variables

<i>Variable</i>	<i>Obs.</i>	<i>Mean</i>	<i>Std. dev.</i>	<i>Min.</i>	<i>Max.</i>
Dependent					
Index	50	0.5926582	0.1283445	0.2911392	0.7974684
Explanatory					
Inasset	50	11.14127	1.435125	8.699514	14.26467
Insales	50	10.84436	1.159905	8.948976	13.00942
Gearing	50	0.5598	0.1909	0.09	0.99
Earnings	50	0.0224	0.3542774	-2.08	0.32
Profit	50	0.13646	0.3973216	-0.825	1.78
Liquid	50	1.1826	0.5943434	0.36	4.12
Industry	50	0.52	0.504672	0	1
Listed	50	0.4	0.4948717	0	1
Audit	50	0.78	0.418452	0	1

Variable description

Index =	The total score awarded to a firm divided by the total available score.
Inasset =	Total assets of a firm at the end of a reporting year transformed into log of total assets for regression procedures.
Insales =	Turnover of a firm for the reporting year transformed into log of turnover for regression procedures.
Gearing =	The ratio of a firm's total long-term debt to its outstanding equity at the end of the reporting year.
Earnings =	The ratio of a firm's total earnings before tax for the reporting year to its total outstanding equity at the beginning of the reporting year.
Profit =	The ratio of earnings before tax to total sales in the reporting year.
Liquid =	The ratio of a firm's current assets to current liabilities at the end of the reporting year.
Industry =	The surrogate for industry type. It is a dummy variable with 0 = manufacturing; 1 if otherwise.
Listed =	The listing status of a firm. It is a dummy variable: 0 if listed on the Madrid and Valencia stock exchanges and 1 if unlisted.
Audit =	Status of a sample firm's auditors. This is a dummy variable: 0 = audit firm is a local firm not affiliated to one of the Big 6 international audit firms; 1 = audit firm is a local one affiliated to one of the Big 6 international audit firms.

detailed information to assure investors of the firm's profitability and to boost management's compensation. While, according to Lang and Lundholm (1993, pp. 248 and 251), disclosure may be related to variability of a firm's performance, if performance serves as a proxy for information asymmetries between investors and managers, the empirical evidence on the direction of the relation between disclosure and the performance measures (earnings and profit) is not clear.

Previous research (e.g. Belkaoui and Kahl, 1978; Cooke, 1989a, 1989b) suggests that the soundness of a firm as represented by a high liquidity ratio can be expected to be associated with greater disclosure. This is based on the expectation that a financially strong firm is more likely to disclose more information than a financially weak one. On

the other hand, if liquidity is perceived in the market as a measure of performance, a firm with a low liquidity ratio may need to give more details to explain its 'weak' performance than a firm with a high liquidity ratio.

Taken together, the preceding discussion on structure-related and performance-related firm characteristics suggests that disclosure may be increasing, constant or even decreasing in line with a firm's structure and performance (Lang and Lundholm, 1993, p. 250).

Market-related variables. In this study, market-related variables are qualitative in character and categorical. They are different from the structure-related and performance-related variables that take on quantitative values in a well-defined scale. A firm either belongs or does not belong to a

category of classification. We view the extent of detail released in corporate annual reports and accounts as a device by firms to reduce the likelihood of adverse market or regulatory action. Market-related variables may be time-period specific and/or relatively stable over time. They may be within or outside the control of the firm. Many market-related variables refer to aspects of a firm's behaviour brought about by its association with other firms in its operational environment. Corporate reporting is a body of organisational cultures that is affected by several factors in a conjunctive manner. One set of factors comes from the market and includes corporate reporting cultures from the industry, stock exchanges and type of auditor (factored into our analysis) with which a firm is associated. Every culture shapes corporate reporting behaviour either through a common action (such as uniform accounting practices within an industry) or by continually offering certain practices which a firm may conceivably want to emulate. The underlying theory here is that a firm's behaviour may differ from what is captured by an index of comprehensive disclosure if it had not been associated with a particular market culture. Each of the three market-related variables in our study is discussed below.

(i) *Industry type.* Because of their peculiarities, firms from a particular industry may adopt disclosure practices additional to those mandatory for firms from all industries. This adoption of industry-related disclosure practices may contribute to the differing levels of comprehensiveness observed from the annual reports and accounts of sample firms.

(ii) *Listing status.* Registration of a firm's equity for trading on the stock market would mean that the firm has to comply with the listing rules that may include the disclosure in annual reports and accounts of items over and above those required by the Spanish Accounting Plan. As a result, the level of detail in annual reports and accounts may vary between listed and unlisted firms. This is in line with the suggestion by Leftwich, Watts and Zimmerman (1981) in respect of the extent of voluntary disclosure in interim reports issued by US firms. It is also in line with the suggestion by Fédération des Experts Comptables Européens (FEE) (1992, p. 7) that listed European firms would provide more information in their annual reports and accounts than unlisted European firms.

(iii) *Auditor type.* The logic of the hypothesis relating to auditor type is that client firms audited by one of the Big Six international audit firms represented in Spain are likely to provide more detail in their annual reports and accounts than client firms that are not. This is because the internationally-affiliated Spanish audit firms are larger and are backed more by the expertise of the

international firms to which they are affiliated than are local Spanish audit firms without any such affiliation. This theory of association—the company you keep determines your behaviour and performance—suggests that the contents of annual reports and accounts are not only audited but also influenced by auditors. If auditors have such an influence and believe that their performance can be judged by the quality of annual reports and accounts they have audited, it seems more likely that Big audit firms that are less dependent on one or a few clients are more likely than small audit firms to suggest that more detail be given in the annual reports and accounts of their client firms. In addition, audit clients are likely to accede more frequently to advice given by Big audit firms than those given by small audit firms.

Statistical methodology

Estimation Procedure

Earlier discussion in the third and fourth sections of this paper has suggested that there is no theoretically correct way of describing the association between the dependent and the explanatory variables. In such a circumstance, Lang and Lundholm (1993) have suggested the use of rank (OLS) regression as a powerful method for coping with data sets with non-linear and monotonic relations between dependent and independent variables. If a dependent variable changes in just one direction (either up or down) as the explanatory variable increases (i.e., if the relation between them is monotonic) a higher-ranked independent variable will correspond to a higher-ranked dependent variable, regardless of the precise relation between the two unranked variables. Before the ranked (OLS) regression was estimated, a rank transformation of the dependent variable and all the continuous independent variables was made.⁷

Variable Descriptive Statistics

The following equation provided the basis of the (OLS) regression estimations:

$$\begin{aligned} \text{index}_j = & \beta_0 + \beta_1 \text{asset}_j + \beta_2 \text{sales}_j + \beta_3 \text{gearing}_j \\ & + \beta_4 \text{earnings}_j + \beta_5 \text{profit}_j + \beta_6 \text{liquidity}_j \\ & + \beta_7 \text{industry}_j + \beta_8 \text{listed}_j + \beta_9 \text{audit}_j + e_j \end{aligned}$$

⁷It has been suggested (Cheng, Hopwood and Mckeown, 1992) that rank transformation provides additional confidence in statistical results because it: (a) yields a distribution-free data; (b) provides results similar to the ones that can be derived from ordinal transformation; and (c) mitigates the impact of measurement errors, outliers and residual heteroscedasticity on the regression results. However, rank transformed data may reduce the levels of reported significance.

Table 3
Correlation Coefficients Between Variables

Ranked variables (obs. = 50)										
	Rankinde	RankIna	RankIns	Rankearn	Rankgear	Rankprof	Rankliq	Industry	Listed	Audit
Rankinde	1.0000									
RankIna	0.7154*	1.0000								
RankIns	0.5714*	0.7735*	1.0000							
Rankearn	0.1333	0.0320	0.2339	1.0000						
Rankgear	0.0093	-0.0480	0.1304	0.1135	1.0000					
Rankprof	0.4242*	0.4204*	0.3050*	0.6019*	0.0483	1.0000				
Rankliq	-0.3939*	-0.2966*	-0.1348	0.2514*	-0.1511	-0.0515	1.0000			
Industry	0.1750	0.2441*	0.1054	-0.0972	0.0805	0.1706	-0.1623	1.0000		
Listed	-0.6769*	-0.6309*	-0.5560*	-0.3397*	0.0538	-0.4498*	0.1627	0.0490	1.0000	
Audit	0.2211	0.3797*	0.2443*	0.1758	-0.0535	0.3513*	-0.0134	-0.1237	-0.3548*	1.0000

*coefficient of correlation significant at 1% level or better.

Variable description

Rankinde =	The total score awarded to a firm divided by the total available score and transformed into ranks.
RankIna =	Rank transformation of log of total assets of a firm at the end of the reporting year.
RankIns =	Rank transformation of log of turnover of a firm for the reporting year.
Rankgear =	Rank transformation of the ratio of a firm's total long-term debt to its outstanding equity at the end of the reporting year.
Rankearn =	Rank transformation of the ratio of a firm's total earnings before tax for the reporting year to its total outstanding equity at the beginning of the reporting year.
Rankprof =	Rank transformation of the ratio of earnings before tax to total sales in the reporting year.
Rankliq =	Rank transformation of the ratio of a firm's current assets to current liabilities at the end of the reporting year.
Industry =	The surrogate for industry type. It is a dummy variable with 0 = manufacturing; 1 if otherwise.
Listed =	The listing status of a firm. It is a dummy variable: 0 if listed on the Madrid and Valencia stock exchanges and 1 if unlisted.
Audit =	Status of a sample firm's auditors. This is a dummy variable: 0 = audit firm is a local firm not affiliated to one of the Big 6 international audit firms; 1 = audit firm is a local one affiliated to one of the Big 6 international audit firms.

where

index_j = the disclosure score for each of sample firm ($j = 1, \dots, 50$) divided by the total available scores

β_0 = the intercept

e_j = the residual.

The dependent variable and the explanatory variables factored into (OLS) regressions and their descriptive statistics are reported in Table 2.

Correlation Among Variables

Table 3 presents correlation coefficients between all variables. The results suggest that collinearity is a potential statistical problem in the multivariate models which may result in inflated standard errors for the coefficients of the explanatory variables. A symptom of collinearity, in this study, was the reversal of the signs of the coefficients on some variables (e.g., earnings, gearing and auditor type) between the correlation matrix and regression equations. Therefore, the potential effect of collinearity on each regression was evaluated using the variance inflation factor (VIF).⁸ Collinearity is considered a problem only when VIF exceeds 10 (Neter et al., 1983, p. 392). The highest VIF reported in the tables of results below is 2.42. Hence, collinearity did not appear to be a serious problem in interpreting the regression results.⁹

Results

As a result of the potential for collinearity, we estimated the coefficients of the explanatory variables using two models. The first was a reduced regression model that included one structure-

related (asset) variable, one performance-related (liquidity) variable and the three market-related variables.¹⁰ The second was the regression model that dropped one of the two highly correlated corporate size variables (sales). The t-statistics and sign of each estimated coefficient in a regression are used to reach a conclusion on the hypothesis about the explanatory variable to which they relate.¹¹

Reduced Regression

The results of the reduced regression are reported in Table 4. The coefficient of the variable 'Inasset' (log of asset) is significantly positive ($p < 0.003$) suggesting that the index of comprehensive disclosure of mandatory items is increasing with firm size. This result is similar to the results of previous studies (e.g., Cerf, 1961; Singhvi and Desai, 1971; Cooke, 1989a, 1989b). The coefficient of liquidity is significantly negative ($p = 0.044$), suggesting that the sample Spanish firms with higher liquidity ratios tend (for reasons discussed later) to provide less detailed information in their corporate annual reports and accounts. The relationship between the variable 'listed' and index of comprehensive disclosure is significantly negative, suggesting that the sample Spanish firms whose stocks are not traded on the floors of the Madrid and Valencia stock exchanges (coded 1) offered less comprehensive disclosure in their annual reports and accounts than sample Spanish firms whose stocks are so traded. This result is not surprising. If listing status is correlated with complexity of operations (e.g. being multinational) then one would expect disclosure detail in the accounts of listed firms to be more than in the accounts of unlisted firms simply because there is more to be reported by complex firms.

Full Regression

The estimates from the ranked (OLS) regression model that does not factor in sales as an explanatory variable are reported in Table 5. The results indicate that the relationship between asset size and index of comprehensive disclosure was significantly positive.¹² The results also indicate that comprehensive disclosure increases with listing status.

⁸VIF was calculated for each explanatory variable. VIF is equal to $1/(1 - R^2)$, where R^2 is derived from the regression of an explanatory variable on all other explanatory variables (Gunst and Mason, 1980, p. 295). As an example, after the full (not the reduced) regression, when the variable Inasset (log of asset) was regressed on the other explanatory variables, the R^2 was equal to 0.5868. Hence, its VIF is $1/(1 - 0.5868) = 2.42$ (see Table 5).

⁹To the extent that there is some collinearity in the data, the results cannot be interpreted unambiguously. It has been suggested (Farrar and Glauber, 1967; Judge et al., 1985) that correlation coefficients should not be considered harmful until they exceed 0.80. However, we consider the coefficient of correlation (0.7735) between log of sales and log of assets high enough to cause us concern. As a result, we dropped sales from the full regression because we considered one of the collinear variables (assets and sales) redundant and so both were not needed for predicting the index of comprehensive disclosure.

¹⁰The motivation for selecting the variables to enter into the reduced regression is derived from their popularity in previous research. Popularity, here, means that a firm characteristic has featured, and has been shown to be a significant predictor of disclosure indexes, in four or more country studies. Corporate size (asset or sales), liquidity, industry type, quotation status and auditor type have been shown to be significant predictors of indexes of disclosure by previous studies. That is why these variables were entered in the reduced regression.

¹¹We derived the estimates of the unranked (OLS) regressions and the estimates of the ranked (OLS) regressions. In all the estimation procedures, the results suggest that the ranked (OLS) regressions have greater explanatory power than the unranked (OLS) regressions. Therefore, the results of the ranked (OLS) regressions are reported upon.

¹²We did not report the results of the regression that included sales (but not assets) since its R^2 (0.6282) suggests that it has less explanatory power than the results (reported in Table 5) which included assets (but not sales) ($R^2 = 0.6528$). The full regression including both assets and sales has no incremental value. Although the R^2 from this regression marginally improved on the R^2 reported in Table 5, the relative influence and significance of the variable 'asset' in this regression model were weak.

Table 4
Estimates from the Reduced Regression of Index of Comprehensive Disclosure on Firm Characteristics

Ranked (OLS) regression

<i>Source</i>	<i>SS</i>	<i>df</i>	<i>MS</i>
Model	6704.22667	5	1340.84533
Residual	3685.27333	44	83.7562121
Total	10389.50	49	212.030612

Number of obs. = 50

F(5,44) = 16.01

Prob > F = 0.0000

R-square = 0.6453

Adj R-square = 0.6050

Root MSE = 9.1518

<i>Rankinde</i>	<i>Coef.</i>	<i>Std. Err.</i>	<i>t</i>	<i>P > t </i>	<i>VIF</i>	<i>[95% Conf. interval]</i>	
RankIna	0.4114348	0.1319875	3.117	0.003	2.17	0.1454315	0.6774381
Rankliq	-0.1963611	0.0947739	-2.072	0.044	1.12	-0.3873654	-0.0053569
Industry	1.532969	2.843693	0.539	0.593	1.20	-4.198117	7.264056
Listed	-12.22998	3.554772	-3.440	0.001	1.80	-19.39415	-5.065809
Audit	-2.744641	3.513254	-0.781	0.439	1.26	-9.825139	4.335856
Constant	26.25129	5.624417	4.667	0.000		14.91602	37.58656

Note: Variable labels are described in Table 3.
p-values are for two-tailed tests.

The full regression model rejected the hypothesis—that liquidity is a predictor of the index of comprehensive disclosure—that was supported by the reduced ranked regression. If the criterion of selection was relaxed, from significance level of 5% or less to one of 10% or less, liquidity would appear to be a significantly negative explanatory variable. From this result, it is possible to suggest that Spanish firms with lower liquidity ratios tend to view their results as bad news and probably consider the provision of more details as part of their accountability to investors and other users of their annual reports and accounts. It is also more likely that high liquidity firms: (1) feel that investors are satisfied with the results and do not need more information; and (2) do not want to provide additional detail that will have to be continued in later years.

On the basis of the sample and the results from both the reduced regression and the full regression excluding sales as a variable, it is possible to suggest that Spanish firms with lower liquidity ratios, higher asset size, and whose stocks are listed on the Madrid and Valencia stock exchanges would provide more information in their annual reports and accounts than firms that are not.

Conclusion

This paper has reported on the results of a study of the corporate characteristics likely to explain the

'comprehensiveness' of the financial disclosure in the annual reports and accounts of a sample of Spanish firms. Comprehensiveness was measured by an index representing the extent of details given on 16 items of required information in a firm's annual report and accounts relative to the total possible details that each firm is expected to give. Two regression models were used to determine which of the nine firm characteristics 'best' explain the variation in the index of comprehensive disclosure of mandatory items in annual reports and accounts. Consistent with the findings from other contexts, the association between the index of comprehensive disclosure and firm size (as represented by asset or sales) on the one hand and listing status on the other were found to be significantly positive in Spain. However, the association between the index of comprehensive disclosure and liquidity was significantly negative and at variance with the results from other studies. The remaining five firm characteristics were found not to be associated significantly with the index of comprehensive disclosure.

These results suggest that there are systematic differences in the corporate reporting by Spanish firms governed by the structure (corporate size) of a firm (with total assets or annual sales serving as a proxy), its operational performance as determined by liquidity and its market characteristics (whether it is listed on the Madrid and Valencia stock exchanges or not). The existence of these

Table 5
Estimates from the Full Regression of Index of Comprehensive Disclosure on Firm Characteristics (Excluding Sales)

Ranked (OLS) regression

Source	SS	df	MS
Model	6782.6236	8	847.82795
Residual	3606.8764	41	87.9725952
Total	10389.5000	49	212.030612

Number of obs. = 50

F(8,41) = 9.64

Prob > F = 0.0000

R-square = 0.6528

Adj R-square = 0.5851

Root MSE = 9.3794

Rankinde	Coef.	Std. Err.	t	P > t	VIF	[95% Conf. interval]	
RankIna	0.4019243	0.1428925	2.813	0.008	2.42	0.113347	0.6905017
Rankgear	0.0055172	0.0957845	0.058	0.954	1.09	-0.1879235	0.1989578
Rankearn	0.0001155	0.1374329	0.000	0.999	2.23	-0.277436	0.2776669
Rankprof	0.102746	0.1400288	0.734	0.467	2.32	-0.180048	0.3855399
Rankliq	-0.2023273	0.1044828	-1.936	0.060	1.14	-0.4133346	0.0086801
Industry	0.9235337	3.007516	0.307	0.760	1.14	-5.150269	6.997336
Listed	-11.23308	3.999591	-2.809	0.008	2.18	-19.31041	-3.155739
Audit	-3.54205	3.704967	-0.956	0.345	1.34	-11.02438	3.940282
Constant	24.42241	6.922617	3.528	0.001		10.4419	38.40292

Note: Variable labels are described in Table 3.
p-values are for two-tail tests.

systematic differences can be construed as the existence of an equilibrium in the market for corporate disclosure. The question that remains to be answered is whether this is a desirable feature. The economic solution that allows large Spanish firms listed on the stock exchange and with low liquidity ratios to provide more detail in their accounts than other firms, may be considered undesirable in a country where there are more small firms and where high gearing and bank lending are being encouraged. In such a situation, Foster (1978, p. 540) recommends that regulation should intervene to correct the anomaly. The results also suggest that there are several variations in the statistical (and probably economic) significance of each of the firm characteristics between one and another country, especially because some of the firm characteristics found, in other countries, to be significantly associated with disclosure indexes (such as auditor type), were not so found in the Spanish study.

There are several limitations in this study. First, the interpretation of the results has been based on correlation coefficients, which are slippery statistics, given the small sample size in this study. One really needs 100 or more firms to obtain a fairly

stable regression equation (Fitz-Gibbon and Morris, 1987, p. 97). Consequently, the results of this study are tentative and await a more extensive study. It is not clear whether the strange finding on liquidity is the result of fundamental differences across countries or differences in design. Future research on Spanish disclosure behaviour should re-examine this liquidity outcome. Second, the study of how comprehensive is the disclosure of mandatory information in corporate annual reports and accounts soon after the overhaul of Spanish financial reporting has its limitation since it approaches the study of a dynamic and quickly changing process with a cross-sectional methodology. Nevertheless, the study does provide a point-in-time comparison. Third, the index of comprehensive disclosure was constructed by the present authors who are not analysts and do not use annual reports and accounts in a systematic manner either in an advisory capacity or for resource allocation. The evaluation of the disclosure in corporate annual reports and accounts may be better performed by those who use them to make decisions on a regular basis.

This study has focused on 16 selected disclosure items. The results may be different if the number

of items were increased or another set of disclosure items examined. The study is not addressed to a particular industry and excludes firms in the financial sector. Perhaps the results would be different had the research focused on a particular industry. The independent variables that were examined are firm-specific and are not directly related to particular end-users of annual reports and accounts. Perhaps future research might enquire into market-determined characteristics of the firm such as share prices and those which directly affect the behaviour of end-users such as dividend payout. Except for Choi (1973), which is concerned with cross-national comparison, previous works in this genre are single-country studies. Future research might further explore the relative significance of firm characteristics in two or more continental countries or between continental and Anglo-Saxon countries.

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Book Reviews

International Group Accounting—Issues in European Harmonisation. S. J. Gray, A. G. Coenenberg and P. D. Gordon (eds.). Routledge, 2nd edition, 1993. xxvii + 435 pp. £50.

The origins of this book are in a 1986 workshop on the EC Seventh Directive, under the chairmanship of professors Coenenberg and Gray, the proceedings of which were published in 1988. Eleven of the papers in the 1988 publication have, after revision, been included in this second edition, together with a further 11 newly commissioned papers and two that were originally published elsewhere. This results in a total of 24 chapters which are contained in five distinct parts to the book.

The first part contains three chapters which provide an overview of European accounting and the Seventh Directive—the first chapter is the original ‘keynote’ address given to the 1986 workshop by Herman Niessen and although this contains little discussion of the Seventh Directive itself, it does provide an outline of the framework of the Directive and its relationship with other accounting directives. The second chapter, by Flint, examines the true and fair view requirement for consolidated accounts and the third, by Nobes, points out how the large number of optional treatments permitted under the Seventh Directive can lead to a wide variety of practice.

However, it is part two that contains the real substance of this book, with 13 chapters devoted to describing the post Seventh Directive position on group accounting in the 12 member states of the EC. The country by country examination by an impressive collection of experts on group accounting practice in each country provides a useful and interesting commentary on developments to date. Up until the mid-1970s, consolidation was not the prevailing practice throughout most of the current membership of the EC and so the implementation of the Seventh Directive represents a significant step forward.

It is at this point that one of the problems I have with the book emerges. Although the editors may have seen clear advantages in not imposing a rigid format on the authors of the 13 chapters, this does affect the ability to draw comparisons, which is somewhat ironic given the subject of this book. For example, in Chapter 3 of Part 1, Nobes considers some of the major optional treatments that are allowed under the Seventh Directive. These can be broadly categorised as: the definition of a sub-

sidary; the permitted exemptions from the requirement to consolidate; the method of consolidation; the treatment of consolidation differences; and the use of merger accounting. These are accounting practices that have a fundamental impact on the message conveyed by consolidated accounts and although the chapters in part two did, for the most part, describe the options adopted in each member state, it was not always presented in such a way as to facilitate comparison.

Part three of the book contains three chapters which examine group accounting in major countries outside the EC. The countries are Japan (Hiramatsu), Switzerland (Zund) and the US (Kubin). The chapters provide a useful identification of the differences between the Seventh Directive and the existing practices in each country and also consider the impact that the Directive might have.

The fourth part consists of four chapters looking at the international group accounting issues of: foreign currency translation (Busse von Colbe); goodwill and mergers (Holgate); segmental reporting (Rennie, Garrod and Emmanuel); and voluntary information disclosures (Gray and Roberts). This part seemed to depart from the main theme of the book and added little. These are well rehearsed issues of international accounting and are covered adequately elsewhere. What might have been better here would have been one or more chapters which tried to draw together the differences within the EC in the optional treatments identified earlier and then offer reasons for them. At the moment, the descriptions of differences provide a useful reference point, but the underlying reasons for these differences would be of even greater interest.

The final part contains just one chapter, which is a reproduction of the article published originally in *Abacus* by Tay and Parker on the measurement of international harmonisation and standardisation.

The main contribution that this book makes is contained in the first 19 chapters and these provide a useful commentary on the implementation of the Seventh Directive and a useful insight into the ways in which the crucially important aspect of group accounting is developing across the EC and other major countries. As such it is likely to be of interest to accounting practitioners and the business community. At £50 the book is clearly not aimed at students but would be a sensible library purchase for most universities.

Cardiff Business School

M. W. Pendlebury

Accounting History. Some British Contributions. R. H. Parker and B. S. Yamey (eds.). Clarendon Press, 1994. 661 pp. £47.50.

This collection of 23 papers was commissioned by the Research Board of the Institute of Chartered Accountants in England and Wales to commemorate the 500th anniversary of the publication of Pacioli's *Summa de Arithmetica* (1494). The volume was produced with great care. Fifteen papers originally appeared in accounting journals, five were published as chapters in books, two came from non-accounting journals and one was previously unpublished. Most of the articles were published within the last 10 years and the earliest dates back to 1970. Of the 26 authors and co-authors, seven are identified with disciplines other than accounting. The authors of 10 chapters took this opportunity to add postscripts to the original.

The introduction by Professors Parker and Yamey contains an informative overview of literature dealing with accounting history, followed by a brief summary of the book's contents. Parker and Yamey emphasise that accounting history is approached from differing perspectives by 'traditional' and 'new' accounting historians and 'mainstream' historians. The book is aimed at the three groups and the editors reflect a touch of supply-side economics in hoping that the volume will stimulate more demand for studies in accounting history.

The main text is divided into eight sections: the Ancient World; Before Double Entry; Double Entry; Corporate Accounting; Local Government Accounting; Cost and Management Accounting; Accounting Theory; and Accounting in Context. The subject matter is (roughly) organised chronologically with the first three sections and several later papers dealing with the pre-industrial revolution period, i.e., before 1750. This material comprises over one-half of the book.

It is difficult, if not impossible, to do justice to the individual contributions in a short review. Those dealing with estates and manors (D. Rathbone, R. H. Macve, P. D. A. Harvey, D. Postles, C. Noke and J. Freear) in the 17th century and earlier were of particular interest to me, probably because I have paid least attention to this area. In one sense, these papers were the most interrelated. Account books are the focus of the articles by G. A. Lee and C. W. Nobes; W. T. Baxter contributes a delightful paper about the tally and checker-board and B. S. Yamey, in a newly-written piece, discusses balancing and closing practices in Italy from 1300 to 1600. He finds that by the 15th century, the calculation of profits and net assets for some continuing enterprises in Tuscany has a 'modern ring' (p. 265). M. J. Mephram writes on the accounting contributions in the Scottish Enlightenment.

Most of the remaining chapters deal with more 'modern' topics. Corporate accounting for early canals, railroads and shipping companies is the subject of the papers by D. A. R. Forrester, J. J. Glynn and C. J. Napier. Napier reminds us that 'sound' accounting practices could be as much an effect of good management as cause (p. 370). R. H. Jones studies local government accounting for a 700-year period from the Middle Ages because he believes that many of the answers to important questions today 'lay in the distant past' (p. 403). The next three papers are on cost and managerial accounting. (Freear is mentioned earlier.) J. R. Edwards and E. Newell deal with the period before 1850 and conclude that managers decide what they want to do and then structure the information system accordingly. P. Hudson, in a study of the West Riding textile industry, also discusses the problem of explaining the choice of accounting practices. However, as S. Marriner points out in her study of the munitions ministry in the early 20th century, accounting choices might involve arbitrary and controversial decisions.

Attention then shifts to two papers on accounting theory. The first, by T. A. Lee, covers the early (and continuing) debate on financial and physical capital. The subject of M. J. Mumford's chapter is the inflation accounting cycle. Both authors suggest that the historical framework shows that issues and ideas in accounting often get recycled.

The last selections take a more sociological perspective. S. Burchell, C. Clubb and A. G. Hopwood view accounting as a social phenomenon and discuss both the social and economic consequences of accounting, and accounting as a response to social and economic factors. R. H. Parker analyses the historical factors that influenced the transfer of accounting from one country to another based on the British experience. And T. E. Ccoke shows how the 'shame culture' in Japan has influenced accounting behaviour in that country.

Some of the papers focus on technical issues and accounting detail. Others are less descriptive and more philosophical. Despite the wide range of issues, subject matter and historical periods, there are common themes. One deals with the idea that accounting history is relevant to understanding current-day problems. Another recurring theme concerns whether developments in accounting practices precede advances in economic thought and organisation, or are the result of those advances? (Rathbone, p. 17). Do accounting practices have an impact on economic rationality? (Macve, p. 64). Thus, many of the papers are concerned in different ways with the broader role of accounting in history. To what extent can accounting practices be viewed as a causal factor having social and economic consequences or, alternatively, are the accounting methods adopted dependent on other

social, political and economic variables? On the other hand, the 'working principle' in Burchell, Clubb and Hopwood is that 'the cause of the origin of a thing and its eventual unity, its actual employment and place in a system of purposes, are worlds apart' (p. 582, quoting from Nietzsche).

In any case, it is clear that the historical framework is particularly useful: accounting can illuminate history and history can illuminate accounting. At a conference also celebrating the 500th anniversary of the publication of Pacioli's *Summa*, Martin Shubik commented that: 'In spite of the enormous growth of importance of macroeconomic and microeconomic accounting to every day life in a modern economy, in the 20th century, much of the development in microeconomic theory virtually ignores the important problems raised by microeconomic accounting' (p. 159). Shubik continues: 'At this point of time, it appears that microeconomists have the logically more satisfactory theories with fewer facts and the macroeconomists have poorer theories, yet great interest and influence in how government information on both the public and private sector is gathered.'

Research in accounting history has an important role to play in understanding problems raised by macroeconomic and microeconomic accounting and this book and its contributors make a significant contribution.

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Richard P. Brief

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Seventh Directive Options and their Implementation.

Fédération des Experts Comptables Européens. Routledge, 1993. ix + 203 pp. £65.

This volume presents the findings of the Seventh Directive Working Party of FEE. The group comprised distinguished academics and practitioners. The publication was edited by Professor Chris Nobes.

The book is based on a survey of the legislation (and accounting standards) of the 12 EU member states and four non-members (viz. Austria, Norway, Sweden and Switzerland) enquiring how 51 options contained in the Seventh Directive have been implemented. The detailed results of

this survey are contained in tabular form in two appendices (98 pages). For each option the relevant Article in which the option appears is reproduced. Italics are used to emphasise critical sentences. The table then identifies for each country whether or not the option has been adopted. Relevant comments are provided to amplify responses where necessary to clarify particular national practice.

The results of the survey of the EU and non-EU countries are summarised and commented on in Chapters 5 and 6. Among the conclusions drawn from these chapters are that nine options are not implemented in any of the EU countries, six are only implemented by one country and four options are implemented by all countries. The implication is that the number of options in the directive in fact overstates the real diversity in regulations that exist from country to country. Consolidated accounts are seen as a means of advancing the cause of harmonisation. In all but two countries (Greece and Spain) the option included in Article 29.2(a) has been adopted permitting the use, in consolidated accounts, of valuation methods other than those applied in the accounts of individual companies. Group accounts in general are not made use of for tax purposes and hence the choice of accounting method is less restricted by fiscal necessity, being more influenced by 'internationally oriented valuation methods'.

By way of introduction to the detailed results of the survey the publication commences with a chapter, by the editor, reviewing the development of group accounting in Europe and identifying the main impact of the Seventh Directive. Two short chapters then follow looking firstly at the impact of the directive on accounting harmonisation and secondly at the concept of equivalence and the possibilities for mutual recognition under the directive. The book also has appendices setting out the full text of the Seventh Directive, listing for each member country the domestic legislation by which the directive has been implemented and summary descriptions of the national law on consolidation for the four non-member countries included in the survey.

The book is a timely and scholarly compilation, in comparative form, of important aspects of group accounting legislation in the EU and as such will be a most welcome additional source of reference on the bookshelves of practitioners and academic researchers. The latter group will perhaps be able to use this as a basis of comparing *de facto* and *de jure* harmonisation. Nobes' introductory chapter can be regarded as a valuable reference for both undergraduate and postgraduate courses in advanced financial accounting and international accounting.

Heriot-Watt University

Paul D. Gordon

Operating and Financial Review: Views of Analysts and Institutional Investors. *P. Weetman, W. Collins and E. Davie.* The Institute of Chartered Accountants of Scotland, 1994. xi + 108 pp. £12.50.

This monograph is based on 20 structured interviews undertaken with senior staff of leading brokers and institutional investors who were asked for their views on the usefulness of the content of the proposed Operating and Financial Review.

In recent years, the belief that published accounting information should be geared towards satisfying user needs has tended to dominate the perspective of accounting policy-makers. Clearly this is only one possible viewpoint, but, subject to this being our chosen paradigm, there is another problem—the quantum leap from deciding that financial reporting should serve the needs of users to determining who those users are and what their needs consist of.

Of the groups usually listed as being actual or potential users of financial reports, the sophisticated investor, as represented by the financial analyst community, is usually to be found near the top of the list. From a research point of view, the difficulties of investigating their information needs can be tackled with this group by asking them directly. I suspect that this would not be successful with many other groups. However, this is not an easy area for accounting researchers, as unlike capital market-based studies, statistically-valid conclusions are rarely going to be possible. Nevertheless, the richness of individual decision-making can be captured with a careful research design, and the authors seem to have avoided the major pitfalls inherent in questionnaire and interview-based research.

The report does much more than merely outline the research project and explain and analyse its findings. It sets the context by reviewing the Operating and Financial Review story so far, and presents an analysis of the written submissions received by the Accounting Standards Board (ASB). It then explains the research methodology chosen and the reasons for its choice, and details the sample of interviewees selected and the conduct of the interviews. Several chapters then discuss the interviewees' responses to the topics under consideration. A final chapter draws conclusions and makes recommendations.

Reading through the report I had many minor points on which I could take issue with the authors. However, the overriding impression I was left with was just how interesting the research results are. We are not presented with data from which statistically significant conclusions can be drawn, but I would be very reluctant to criticise this study for that. What it does do is to add to our knowledge of the current issues in investment analysis and the role of the information provided by the

annual report and accounts. And though based on only 20 interviews, these 20 are arguably more significant than interviews with a much greater number of small investors since those concerned are responsible, directly or indirectly, for major investment decisions. Notions of equity require that all investors have access to the same body of information, but it is doubtful whether they all use it to equal effect.

However, there are some more important points on which I would take issue. The researchers implicitly adopt a 'user needs' approach. I think their work would have been enhanced by a critical appraisal of this tradition giving its place as only one, however important, theory of accounting. I would also have liked to see more space devoted to discussion and appraisal of prior research in the area, and its implications for this piece of work. Coupled with this could have been some consideration of analysts' decision models. This was not specifically within the ambit of the research but there is still a tendency to treat the user of accounting information as a 'black box'. We need to know not only what information users need and use, but also how they make use of it.

Major themes that emerge from the research as important areas for consideration both by future research projects and by accounting policy-makers are discussed in the last chapter of the monograph. Insider trading emerges as an issue that is causing much concern for both preparers and users and this has clear implications for regulators. There are signs that traditional information dissemination channels are beginning to become outmoded with changes in technology; a fact that will need to be taken into consideration by preparers, users and regulators and which may affect the relationship between, for example, the ASB and the Stock Exchange. And finally, a word of warning for users which can be put fairly bluntly—if they do not make their views on the quality and quantity of the information contained in the annual report and accounts known, then they cannot expect to have them taken into account.

This is a useful and timely contribution to the literature. It is well-written and extremely readable and has relevance for academics, practitioners and above all accounting policy-makers.

London School of Economics
and Political Science

Judy Day

Interim Statements and Preliminary Profit Announcements. *Roger Hussey and Sarah Woolfe.* ICAEW Research Board, 1994. ix + 133 pp. £15.

This book addresses a range of issues connected with the timing and frequency of financial reporting in the UK. As in so many contributions on 'timeliness', the

concept is related to the reporting function. This may be described as a narrow view because the reporting of timely financial information to users depends on the contemporaneity of the information presented in financial statements. In addition, the concept of continuous disclosure or critical events reporting has not been addressed. Nevertheless, the authors have contributed to the current debate in the UK about the contents, status and timeliness of interim reports and preliminary profit announcements.

Following the introduction, Chapter 2 presents an examination of relevant reporting developments in the US and UK. Chapter 3 examines previous research studies conducted locally and overseas, and the main regulatory proposals that have been put forward. Throughout the publication, relevant comparisons of results of the present study are compared with earlier UK studies by Cholmeley (1982), Lunt (1982) and Coopers and Lybrand (1992). Chapter 4 addresses major accounting issues including the view of the interim period (integral versus discrete), auditor involvement with interim reporting, frequency of reporting, accounting bases and policies, contents of interim reports and comparative periods.

In their discussion of quarterly financial reporting, the authors readily accommodated the reported views of the Financial Reporting and Auditing Group (FRAG) of the Institute of Chartered Accountants in England and Wales which is not an advocate of reporting on the quarterly basis. The reasons given for the ICAEW's position on quarterly reporting are the excess of costs over benefits, the technical accounting problems involved, and the 'deleterious effects of having companies focus on company's quarterly results rather than considering the company's long-term future' (FRAG, 1992, p. 5). These arguments were ripe for critical examination given the apparent lack of adequate research by the FRAG at the time on the cost-benefit factors, and the typical use by company management including directors of quarterly, if not monthly, financial information for economic decision making. Further, accounting standard setters are presumably capable of examining and resolving technical accounting problems.

Results of surveys of advertised and distributed interim reports are reported on in Chapters 5 and 6 respectively. At times, the results are heavily detailed, perhaps excessively, such as the analysis of contents of balance sheets and cash flow statements. A survey of trends for a random sample of 50 companies is presented in Chapter 7. Interesting results are provided for the period 1988–1992. Although the results show a greater propensity for certain voluntary disclosures in preliminary profit announcements compared with interim reports, the reasons for this state of affairs remain elusive.

Chapter 8 presents the results of 50 face-to-face interviews conducted with a range of people involved with the financial reporting process. These individuals comprised analysts (14), auditors (8), preparers (13), private shareholders (19) and 'other' (6). Although the chapter is structured, the results are tabulated and are broadly summarised. The authors state that 'none of the interviewees expressed a strong opinion in favour of quarterly reporting' (p. 101), and they list the perceived disadvantages of quarterly reporting. Readers are left to ponder about how many, if any, of the interviewees preferred quarterly over half-yearly reporting.

Conclusions and recommendations on a range of issues are presented in Chapter 9. The recommendations are based on the findings of the present and previous research studies and are generally thoughtful. The recommendation to the London Stock Exchange to reduce the interim reporting lag by one month to three months is commendable although there would appear to be a case for the adoption of a similar requirement for preliminary profit announcements. The authors have not perceived any need to alter the status quo with respect to the length of the reporting period.

The book has been well-written and provides current evidence to assist those involved in policy debates in the UK about interim reports and preliminary profit announcements.

Deakin University

Garry Carnegie

Corporate Reports—A Guide for Preparers and Users. Roger Hussey and Mary Bishop. Woodhead-Faulkner, London, 1993. xix + 292 pp. £19.95.

The preface, identifying the intended readership of this book as users, preparers and auditors of financial reports, is reinforced by the cover claiming that it provides an ideal source of reference for those responsible for compiling and analysing annual reports. This review questions whether these assertions are in fact justified.

The text presents the UK regulatory regime of financial reporting as it existed at 31 December 1992, although Chapter 1 refers to Accounting Standards Board pronouncements up to 31 March 1993 in the context of presenting an overview of corporate reporting. The book contains 10 chapters. Chapter 1 gives an overview, stressing the sources of financial accounting regulation in terms of statute law, stock exchange requirements and accounting standards. It provides a clear statement of the range of companies covered by each source of accounting regulation. Chapter 2 deals with matters associated with group accounts, comprising definitions and summary explanations of the numerous terms and concepts that are likely to be encountered in a set of consolidated financial statements.

Chapters 3 to 8 follow approximately the order in which topics are normally encountered in the annual report, namely the directors' report, the consolidated profit and loss account, the balance sheet, the cash flow statement, the notes to the accounts, and the auditors' report. Chapter 9, on exemptions and exclusions, deals with the various situations where departure from mainstream regulation may be permitted. There is an interesting final chapter on other disclosures and reports. The format-based arrangement of Chapters 3 to 8 can prove rather wearisome. It also means that the reader seeking a full picture of the treatment of an individual element of information is forced to jump around the book. To be provided with the full story on accounting for goodwill, for example, the reader must consult three different chapters.

The book's style is factual and remains authoritative although attempting to simplify complex regulation. The authors have been meticulous in making precise reference to the sources of the particular regulations being considered. This is supplemented by topic checklists in Chapters 3 to 7, linking to authoritative source material. Although always stating the options that are available to companies, the authors could have discussed the merits of these options and could have cited the most favoured practices, as found in the Institute of Chartered Accountants in England and Wales' Survey of UK Reporting Practice. The book provides one comprehensive illustration of UK accounting practice with the regulated portion of the 1992 annual report of Wellcome plc. This is backed up by 47 exhibits dotted around the text of individual accounting and disclosure practice taken from the annual reports of other major quoted UK companies.

Users of this book are likely to be company finance directors or similar accounts staff. To that group it provides a Cooks tour of the labyrinth of regulation that has grown up over the years and a reference to the relevant legislation or other regulatory source. It is a highly readable concise summary of what has to be contained in a statutory set of accounts. In general, little attempt is made in tracing the pressures that have brought about particular regulations or the regulatory process. The balance of the book is high on technical content, but low on insightful analysis.

I see limited use of the book for users, be they individual or institutional, other than as a manual of types of information they should expect to receive from a company that has complied with the appropriate regulations. It does not hold itself out as an undergraduate or postgraduate text book, and probably would have only limited usage on university courses. It might be useful as a source of reference for students and instructors alike in that part of a second year financial accounting course dealing with published accounts presentation and

the contents of notes on the accounts. To this end this volume is well worth recommending for a library acquisition.

Overall, this is a worthwhile volume, reducing a complex body of material into clearly presented and succinctly summarised form. The reader is left knowing exactly where further technical information may be found and is provided with numerous references, from which the necessary further detail could be obtained.

Heriot-Watt University

Paul D. Gordon

Stock Exchange Reporting. *Dudley Hilton and Isobel Sharp.* Butterworths, 1994. 368 pp. £47.

On 1 December 1993 the Stock Exchange published a completely revised and restructured edition of its Listing Rules. More commonly known as the Yellow Book, this contains the requirements for companies listed on the International Stock Exchange of the United Kingdom and the Republic of Ireland Ltd.

The declared aims of the Stock Exchange in revising the Yellow Book were: to make the Listing Rules easier to follow by means of presentational improvements; to incorporate the various 'unwritten rules' that had developed over the years; and to reduce the amount of general commentary by expressing all requirements in clear terms. Those familiar with the old publication will agree that, to a large extent, these aims have been achieved and the new A4 format is far easier to use.

Given the improvements in the original document, is there any place for a new book on stock exchange reporting, particularly one running to over 350 pages and costing £47? The volume by Hilton and Sharp has reordered and amplified the material, but the value of the volume in the lecture room, or for reference and research purposes, is severely limited because of the lack of discussion and analysis. This book is written by practising accountants and intended for practising accountants. Although the authors claim in the preface that their preferred title was *A Hitchhiker's Guide to the Yellow Book*, this is the only attempt at humour you will find.

The first chapter provides an introduction to the role of the Stock Exchange. A very cursory review is given on the changes which have impacted on the Exchange through the 'Big Bang', the Financial Services Act 1986 and the implementation of EC directives. This provides a potted history for the uninitiated, but there is practically no discussion of the various factors underlying these events or their consequences other than of a technical regulatory nature. This is not the type of book which mentions the efficient market hypothesis, even in passing.

Chapter 2 examines the various stages that may occur in the life of a listed company. The possible reasons for coming to the market are given which are to unlock the shareholder value, to raise new capital, to gain enhanced status, or growth by acquisition using marketable paper rather than cash. Once on the market the company may raise new money, acquire or dispose of part of the business, be party to a takeover or merger, or even cease to be listed. All of these potential events are separately addressed in two or three paragraphs which serve as an introduction to a subsequent chapter dealing with the issues in greater depth.

It is possibly towards the end of Chapter 2 that the deficiencies of the book for academic purposes become most evident. Apart from a few scattered references to The Really Useful Group and Virgin, there are no examples to illustrate the various stages in the life of a company. Neither is there any statistical information on the size of the Stock Exchange, the level of activity or contribution to the economy. For those who enjoyed the real life flavour of Michael Brett's (1987) *How to Read the Financial Pages* (Hutchinson), the lack of any sense of drama and excitement makes for an arid read.

The highly technical approach comes to the fore in Chapter 3, which is entitled 'Finding a Way Through the Yellow Book'. Indeed, apart from Chapter 4 on the Unlisted Securities Market and the Over The Counter Market, the remaining 14 chapters are little more than a re-worked, but a more comprehensive restatement of the Yellow Book.

Perhaps this is the redeeming feature of the book. It does admirably well what the authors intended, which is to provide a comprehensive source of information on the technical requirements of the Stock Exchange for practising accountants. But like any book concerned with financial reporting, it is going to have a short shelf life. The new Yellow Book came into effect on 1 December 1993. Those subscribing to the Stock Exchange amendments service will have received a voluminous stack of papers dated July 1994 containing the most recent changes. Many of these are not of a significant nature, but unless *Stock Exchange Reporting* is produced annually it will soon become outdated. I fear that there is insufficient fresh material of substance in the volume to warrant an annual publication.

University of the West
of England

Roger Hussey

Using Ratios and Graphics in Financial Reporting.
Canadian Institute of Chartered Accountants. 1993.
xvi + 222 pp. C\$35.

The stated rationale for this research report commissioned by the Canadian Institute of Chartered

Accountants (CICA) runs as follows: there is widespread use of ratios and graphical presentations in financial reporting; their use is intended to convey a better understanding of financial information; due to a lack of guidance there is, however, a diversity of practice; this leads to confusion and can result in information distortion; therefore a study is needed to review relevant literature, establish Canadian practices, assess the need for financial reporting standards and, if required, propose such standards.

Following a six-page executive summary, the study group's report is divided into seven chapters. After a brief introductory chapter, three chapters are devoted to financial ratios and three to graphical presentations. Appendices (extending to 41 pages) provide detailed supplementary reviews of the extant literature, current practice in Canada, and examples of current practice. The study group conducts original survey research to establish current Canadian practice, analysing the 1991 annual reports of 200 public companies from 12 industry sectors.

The study group's review of the literature on financial ratios identifies 48 ratios from 25 empirical studies and 80 ratios discussed in 23 finance publications and accounting texts. They conclude, however, that 'little research has been undertaken to produce a theory of financial ratio analysis' (p. xii). They therefore develop such a framework themselves. This framework encompasses the three main aspects of an entity's activities—investment return (measured using capital market ratios), financial strength (measured using liquidity and solvency ratios) and management performance (measured using profitability, asset activity and productivity ratios). The 89 different ratios identified from their survey are classified into either one of these six categories or into an 'other' category or 'financial services' category.

In Chapter 3, 23 important ratios from within the six main categories are individually described and evaluated; a suggested standard title and calculation formula is also provided. The study group proceeds to define as key ratios those which provide information necessary for an adequate understanding and interpretation of operating, investing and financial activities of an entity, with 12 ratios being identified as key. It is proposed that management should disclose all key ratios in one location in the annual report, preferably in the historical summary section, and provide explanations and interpretations for significant changes in them in another, preferably in the financial review section.

I was particularly interested in the second half of the book, dealing with graphical presentations, since I have been working in this area for the last few years with Mike Jones. Our own research report, published by the ACCA in 1992, is heavily

referenced in the CICA research report, and the structure and format of certain sections are very similar. The study group initially considers the benefits and limitations of graphics. A summary of their survey findings with respect to Canadian practice follows, and includes a discussion of the type of graphs used, the variables graphed and the financial ratios graphed.

Chapters 6 and 7 include a review of the basic form of graphics, the principles of graph type selection and graph design (p. 151) and a list of potentially misleading aspects of chart graphics (p. 125). These issues are illustrated with reference to 10 graphs, drawn from the survey, which do not conform to these principles, with a revised graph being presented for comparison (pp. 126–140). These examples are highly instructive.

The study group concludes by offering a three-step approach for the preparation of financial graphics: determine the message (e.g. depiction of specific item amounts); select the appropriate chart form (i.e. column, bar, surface or pie); and design the chart (following graphic conventions).

I can find little to say that is critical of this book. It provides a comprehensive, rigorous and systematic synthesis of extant research literature and authoritative pronouncements in financial ratios and graphic presentations. It is therefore essential reading for anyone interested in these areas. It also conducts a useful detailed survey of Canadian practice. I have, essentially, only two criticisms to make. First, I was concerned that the basis on which the 200 survey companies were selected was not stated, since failure to use random sampling will reduce the validity of the results. Second, discussion of the graphics literature was largely restricted to applied empirical work. There does exist a more rigorous theoretical literature which consider how graphs are perceived and processed. Future progress in this area must be firmly grounded in such a theoretical framework.

I am delighted that professional bodies are at last giving serious consideration to the issue of financial reporting presentation. It may be noted that in evaluating the Financial Accounting Standards Board's conceptual framework, Solomons has said that 'it seems unlikely that any further work will be done on it, except perhaps on the methods of display of financial information'. I sincerely hope that FASB and others do indeed follow the lead taken by the ACCA in the UK and CICA in Canada.

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Vivien Beattie

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- Solomons, D. (1986), 'The FASB's Conceptual Framework: An Evaluation', *Journal of Accountancy*, June, pp. 114–124.

Activity-Based Management. James A. Brimson and John Antos. John Wiley, 1994. xii + 364 pp. £42.95.

This book contains 12 chapters, an appendix of examples of activity-based management and a glossary. In the preface, the authors state that 'This book was written for people interested in applying activity-based management (ABM) to the service, government, and non-profit sectors of the economy and all types of support functions.' The book is therefore intended mainly for practitioners rather than academics or students.

The authors start by linking ABM to enterprise excellence and they also discuss the changing service environment in terms of the decline of traditional service production and the increased automation of the service industries. Activities, activity management and cost management are then defined and contrasted. This is followed by a chapter in which the authors list numerous advantages of focusing on activities. The various steps, aggregation and decomposition procedures for the implementation of activity analysis are then presented, and in a following chapter the main activities of an enterprise are identified, viz. marketing and sales, service production and quality control, R & D, finance and administration, and logistics and field support.

The next four chapters focus on activity cost. This includes identifying activity cost behaviour and appropriate causal relationships, the steps needed to calculate activity cost, tracing activity cost (reporting objectives, traceability criteria, cost precision and cost significance) and in the last of these four chapters, attention is focused on activity service cost in which traditional approaches to service cost are contrasted with activity-based costing. The penultimate chapter deals with activity-based budgeting; here again the authors contrast traditional and activity-based budgeting, explain the activity-based budgeting process and highlight the importance of linking strategy and budgeting. The final chapter returns back to the activity management theme, emphasising its focus on process management as the key to enterprise excellence, with a brief reference to market targeting and activity/business process improvement.

The book provides a comprehensive, step-by-step account of how ABM can be implemented; it is a good manual for practitioners with an interest in this area. Each chapter commences with a brief statement of its purposes for easy reference. The book also contains numerous practical examples drawn from the authors' rich experience which helps in illustrating some of the key concepts. There are a number of weaknesses, however.

In several places the authors make assertions that are not supported or justified and hence have to be taken at face value. Further, there is an element of repetition which makes the book a bit too long for what it offers. The book also contains too many short sub-headings, presumably intended for easy reference but which nonetheless make the content a little disjointed. Finally, for a book that is intended to focus on government and non-profit organisations, there are precious few comments

devoted to that sector as many parts of the discussion give the impression of focusing on for-profit organisations.

In conclusion, this is a welcome and timely book full of rich examples from the authors' experience, which will prove helpful to many practitioners.

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Watts, R. L. and Zimmerman, J. L. (1986), *Positive Accounting Theory* (Englewood Cliffs, NJ: Prentice-Hall).

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